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ABSTRACT

After World War II there was a great influx of veteran students into colleges and universities across the nation, partially because of the G.I. Bill passed in 1944. This study examines the records of 10,000 college students of 1950 and compares veteran records with nonveteran records with regard to academic adjustment, personal characteristics, age and general background, motivation, worries, and student-college relationship. Also discussed are the G.I. Bill and how college students spend their time. Two of the major findings show that: (1) veteran students prove to be superior achievers as compared with nonveteran students; and (2) students from families whose income was under $2,000 a year did better than the students whose families earned more. (HS)

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ADJUSTMENT TO COLLEGE

A STUDY OF 10,000 VETERAN AND NON-VETERAN STUDENTS IN 16 AMERICAN COLLEGES

Preface
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Chapter I. The Findings and Their Implications: A Summary

Norman Frederiksen

and

W. B. Schrader

Educational Testing Service

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Preface

In the years immediately following World War II, when there was a good deal of speculation and little dependable information about the adjustment of veteran students to college, the idea of making a thorough investigation of the problem was suggested by the Carnegie Corporation. After considerable thought and discussion of the possible values of such a study and the methods of obtaining and analyzing data, the investigation described here was undertaken by the College Entrance Examination Board with the support of the Carnegie Corporation. Following the merger which led to the formation of the Educational Testing Service, the study was carried to completion by ETS.

It is believed that the findings reported will be of value in a number of ways and to various groups. Findings on the value of tests and high school record for predicting academic success in college should be of interest to guidance personnel, educational psychologists, and college administrators, particularly admissions officers. The results of the analysis of the questionnaire items may have some significance for psychologists interested in personality as well as to guidance officers and educational psychologists. A considerable amount of information on background characteristics and attitudes of college students should be of considerable interest to college officials. Finally, the findings with respect to college success of low income students and veterans enabled to attend college through the educational benefits of the GI Bill may have some significance with respect to scholarship programs.

A great many people contributed to the study in a variety of ways. It is unfortunate that acknowledgment by name cannot be made to all those people at the various colleges and universities who permitted the study to be made and who supplied the data; these people cannot be named because of the decision not to reveal the identities of the participating institutions.

Acknowledgment is due to Dr. ~~John~~ Charles Dollard, President of the Carnegie Corporation, and to Dr. O. C. Carmichael, President of the Carnegie Foundation for the Advancement of Teaching, for their helpful suggestions in planning the general objectives and outlines of the study. The members of an Advisory Committee, consisting of Professor Philip Rulon, Mr. Lyle Spencer, Professor Kenneth Vaughn, Professor Frederick Stephan, and Dr. Felix Moore, also participated in the initial phases of the planning and made many useful suggestions regarding hypotheses to be tested and procedures for obtaining data.

A great many members of the staff of the Educational Testing Service contributed to the study. Mr. Henry Chauncey, President of the Educational Testing Service, contributed many useful suggestions and criticized portions of the manuscript. The technical assistance of Dr. Ledyard R Tucker, Professor Harold Gulliksen, Mr. Frederic Lord, and particularly Professor S. S. Wilks has been invaluable. Mr. John Clausen, who had major responsibility for the development of the Student Opinion Questionnaire, contributed greatly through his broad experience in survey and questionnaire studies. Mr. Robert Myers developed the questionnaire coding manual and gave general supervision to the coding operation. Miss Henrietta Gallagher was the direct supervisor of the coders. Mrs. Judith Aronson was in charge of computing and Mr. Harry Garrison supervised the punching and tabulating operations. Mr. Donald Peterson assisted in making arrangements with the participating colleges for obtaining data. Mrs. Mary McCabe supervised the transcription and preparation of much of the data. Mrs. Margaret Kostritsky aided in preparing the bibliography.

The entire manuscript was read by Dr. William W. Turnbull, who made many helpful suggestions. Portions of the manuscript were also read by Dr. Douglas Schultz and Professor A. P. Horst, who also contributed many useful suggestions. Miss Evelyn Wicoff contributed greatly through painstaking editorial work on the manuscript. Finally, acknowledgment is gratefully made to Mrs. Sally Matlack, who spent many hours of careful work in typing the manuscript.

Norman Frederiksen

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Chapter I

THE FINDINGS AND THEIR IMPLICATIONS: A SUMMARY

Introduction

The influx of about one million veterans into American colleges and universities at the close of World War II was a remarkable phenomenon in American higher education. Besides bringing college enrollments to a peak well beyond any previous level, the veterans were obviously distinctive in at least three other ways: First, they brought a background of experiences which often had no counterpart in the backgrounds of civilian students; those who had not been in combat had at least undergone the experience of service in the armed forces in time of war. Second, they were enough older than their nonveteran fellow students to change the general appearance of the student body. Third, because of the educational provisions of the GI Bill of Rights, their decision to attend college, and their choice of college, was undoubtedly less affected by the economic status of their family than would usually be the case. From a psychological viewpoint, a need was evident for getting behind these more conspicuous characteristics of veterans and to describe veteran-nonveteran differences in terms of more meaningful psychological and educational variables--achievement, aptitudes, worries, attitudes.

Some characteristics of the veteran group had decisive administrative implications, so that speculation, judgment, study, and interpretation were brought heavily to bear on these issues. Veterans' educational plans were important in college planning for staff and facilities. Their marital status and family responsibilities affected college housing plans. Their emotional stability or instability bore on the question of psychiatric and psychological services. Their ability to form wise and realistic vocational and educational plans affected counselling needs. Their formal and informal educational experiences in the service created a need for aids in evaluating these experiences; the American Council on Education provided the _Guide to the Evaluation of Educational Experiences in the Armed Services_ and the General Educational Development tests to aid in this matter. Their ability to do college work without having completed the usual prerequisites had important implications for admissions procedures. Their "rustiness" in academic pursuits was made the basis for refresher and other course provisions to ease their transition into the stream of college life. Their desire for acceleration influenced college calendars and student programs, and led to procedures for admitting students at other than the usual time. Their reasons for coming to college and attitudes toward the conventional academic curriculum bore on the touchy subject of curriculum adjustment. All of these subjects have been dealt with in the extensive published literature on this fascinating group, and no doubt college files contain many unpublished reports on these subjects.

Need was evident for a systematic comparison of veterans and nonveterans with respect to such things as background, attitudes and motives, worries, and participation in various aspects of college life. Such information, valuable for its own sake, should also aid in understanding the dynamics of academic success and failure and in accounting for veteran-nonveteran differences in academic success.

A particular need was recognized for specific study of the students who would not have attended college without the aid provided by the GI Bill--an inquiry which would consider not only academic success but also various personal characteristics of these students.

The study to be reported here was designed to meet these varied needs. This chapter is primarily a summary of findings; only enough attention to method will be given to make evident the basis for the results reported. In summarizing the findings, the following sequence will be followed. First, an effort will be made to determine whether veterans did earn better grades in college, relative to ability, than did nonveterans. Second, veterans and nonveterans will be compared with regard to background and attitudes, as reported by them on a questionnaire. Third, the value of the questionnaire items in identifying promising students will be considered. Fourth, the special study of veterans brought into college by the GI Bill will be summarized. Fifth, the information obtained from the questionnaire will be used in an attempt to account for differences in academic performance between veterans and nonveterans. Sixth, some comparisons of men and women students with respect to academic success, background, and attitudes will be made. Seventh, the findings of this study regarding the effectiveness of conventional predictors of academic success will be summarized. Eighth, the possibilities of using data from the student questionnaire for obtaining a description of a college will be illustrated.

Did Veterans Succeed Better in College Than Nonveterans?

The academic success of veterans in college was early recognized as an important subject for investigation. Evidence was needed promptly to aid in making short-term adjustments in admissions, placement, counselling, and curriculum. More intensive study was also clearly needed to evaluate the possible implications of the veterans' success for long-range formulations of educational and public policy. It was clear that the performance of veterans had an important bearing on two major issues in higher education: who should go to college? and at what age should the typical student enter college? It was also clear that the performance of veterans in college was relevant to the problem of predicting college success, a matter which has received considerable attention from psychologists, especially during the past thirty years.

A major purpose of the present study was to provide a reasonably clear answer to the question: how did veterans and nonveterans differ with respect to academic success? On examination of this question, it became evident that a number of specific steps must be taken in order to minimize influences which might obscure the differences and thus present a misleading estimate of their importance. In particular, the following procedures were carried out.

1. Recognizing the diversity of American colleges and universities, studies were made in cooperation with 16 colleges and universities so chosen as to include private colleges, state universities, and municipal universities; coeducational and men's colleges; large universities and relatively small colleges; colleges with great financial resources and less wealthy institutions; and colleges located in large cities as well as colleges in small towns.

2. The crucial comparisons in this study were between male veterans and male nonveterans who were enrolled in the same division (e.g., liberal arts or engineering), in the same class (e.g., freshman or sophomore), of the same college or university.

3. Differences between veterans and nonveterans in aptitude for college, as measured by conventional predictors of college success, were controlled by the use of analysis of covariance.

4. Those veterans who had received a substantial amount of college training in the V-12 program or in the Army Specialized Training Program were excluded from the comparisons.

It is not necessary at this point to describe in detail the analysis of covariance procedures used in evaluating veteran-nonveteran differences in academic achievement; the methods are described fully in Chapter II. Separate comparisons were made for veteran and nonveteran students in each of twenty-five separate groups, each of which was homogeneous with respect to institution, division within the institution, and academic status of the students; and each comparison involved the use, as the criterion, of a measure of achievement-relative-to-ability called the Adjusted Average Grade (AAG). In effect, then, in each college group veteran students were compared with nonveterans of the same ability. The estimates of ability which were employed were based, in most instances, on a test or tests of scholastic aptitude and achievement, or on a measure of high school success used in combination with a test or tests of aptitude and achievement.

What, then, were the findings with respect to veteran-nonveteran differences in Adjusted Average Grade? In Figure 1 twenty-five separate answers are provided, one for each group studied. It will be seen that the names used for the sixteen colleges and universities are fictitious; the code names are used throughout the report in order to preserve the

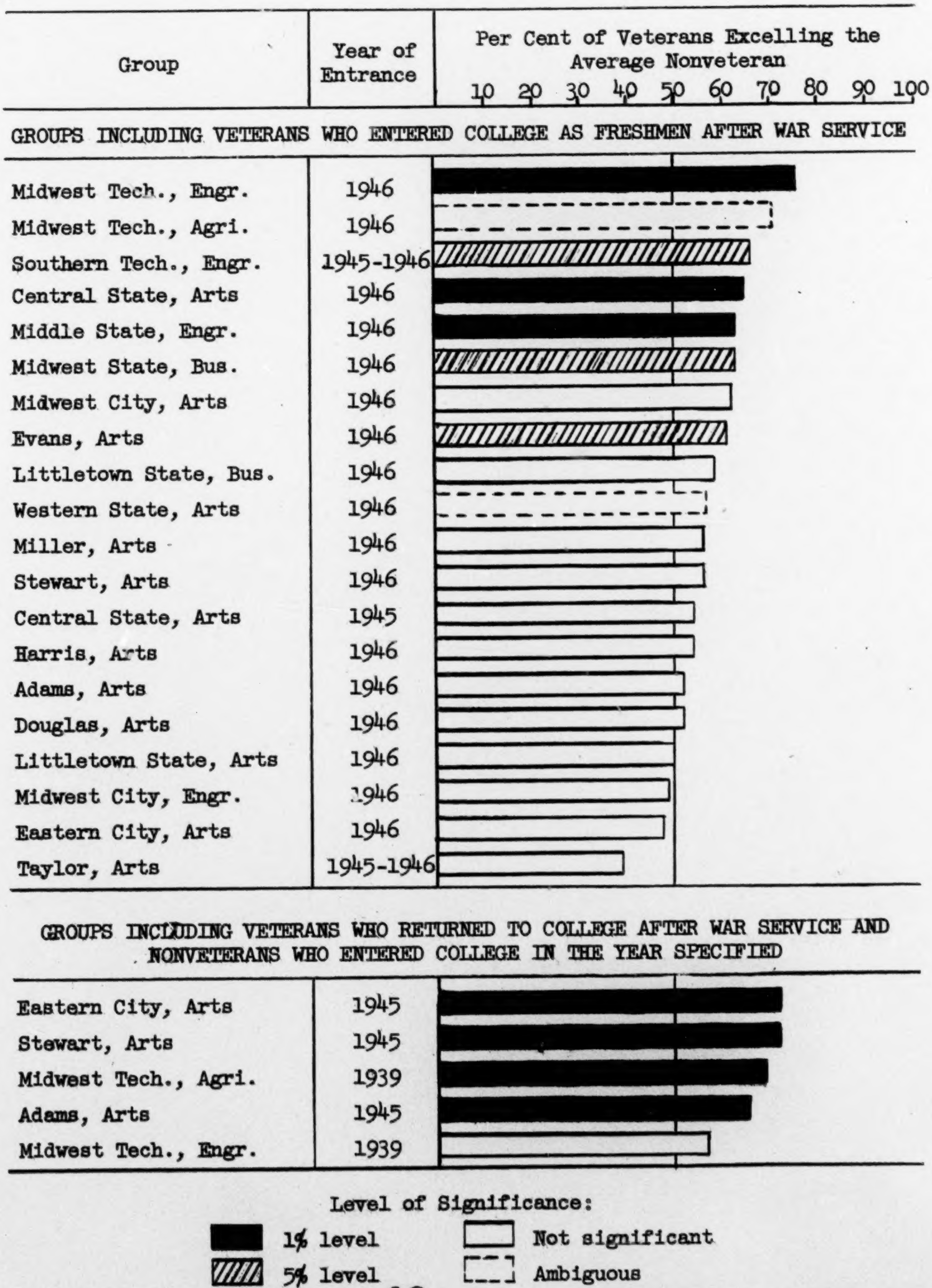

FIGURE 1. PER CENT OF VETERANS EXCELLING THE AVERAGE NONVETERAN WITH RESPECT TO ADJUSTED AVERAGE GRADE IN EACH OF TWENTY-FIVE COLLEGE GROUPS.

anonymity of the cooperating institutions. Let us consider first the results for the twenty groups containing freshman students.

For ease of interpretation, the results are presented in terms of the per cent of veterans excelling the average nonveteran in Adjusted Average Grade, that is, freshman average grade adjusted in such a manner that any ability differences between veterans and nonveterans have been cancelled. If veterans and nonveterans were exactly alike, the two AAG distributions and the mean AAG's would coincide, and 50 per cent of the veterans would be found to excel the average nonveteran. If veteran students are slightly superior, the two distributions will not coincide but will overlap, and that proportion of the veterans' distribution which falls to the right of the mean AAG for nonveterans will exceed 50 per cent (see Figure 10, p. II-26).

Referring to Figure 1, we may note the two most extreme cases; 76 per cent of the veterans excelled the average nonveteran in Adjusted Average Grade in the engineering school of Midwest Tech (a midwestern land-grant college), while at the opposite extreme only 39 per cent of the veterans excelled the average nonveteran at Taylor (a private coeducational university). In the latter case the veterans were actually inferior to the nonveterans.

Veteran superiority in grades relative to ability is then not a universal tendency. What about the over-all results? It will be observed that in 16 of the 20 comparisons involving freshman students the veteran subgroup was superior; one would expect by chance to find 16 out of 20 differences in one direction less than 5 times in a hundred trials. This result in itself, being significant at the 5% level, may be considered as moderately convincing evidence of superiority of veteran students in academic work when ability differences are kept constant. In the remaining four comparisons the nonveterans were superior (although for liberal arts students at Littletown State the superiority of the nonveterans is too small to be apparent in Figure 1).

Are the differences between veterans and nonveterans statistically significant in each of the 20 college groups now being discussed? Evidence on this question is shown by the shading of the bars in Figure 1. The black bars indicate a highly significant difference (the 1% level of confidence), the diagonally shaded bars indicate significance at the 5% level, and the white bars indicate results which are not significant at the 5% level. Bars outlined with broken lines indicate that the results of the significance test were ambiguous (because of technical considerations related to the fact that errors of estimate are greater for one subgroup than for the other).

In three of the comparisons, those for engineering students at Midwest Tech and Middle State and for liberal arts students at Central State, who entered in 1946, the veterans are significantly superior (at the 1% level) to nonveterans. In three additional comparisons the differences are significant at the 5% level. The remaining ten comparisons which showed veterans to be superior were either ambiguous or not significant (at the 5% level). In none of the four cases where nonveterans were superior was the difference significant.

On the whole, therefore, it must be concluded from the studies of freshman students that there is a tendency for veterans to achieve higher grades in relation to ability than do nonveteran students. The actual magnitude of the difference is small, however. In the most extreme case, the advantage of the veterans would on the average amount to no more than the difference between a C and a C+. In other institutions the difference was much smaller, and as we have seen the direction of the difference is even reversed in some colleges.

Now let us consider the remaining five comparisons--those involving "interrupted " veterans. Substantially all the veteran students in these five comparisons were those who had completed at least two quarters of freshman work as ordinary civilians, who then entered military service, and who returned to college after discharge and completed at least an additional two quarters of academic work. The nonveterans with whom the interrupted veterans were compared were ordinary civilian students who completed without interruption the same amount of academic work as the veterans. In three of the college groups these nonveterans were postwar students who entered college as freshmen in 1945; but at Midwest Tech they were prewar students who had entered in 1939. In all five of these groups, college grades earned early in a student's academic career were taken as the measure of his ability; those earned later in his college career were used as the measure of his academic success. For the veterans, of course, a considerable amount of time elapsed between their early and later academic work.

In all five groups involving interrupted veterans, veteran students were superior to nonveterans of equal ability. In four of the five comparisons, the difference in Adjusted Average Grade was significant at the 1% level. The proportion of veterans who excelled the average nonveteran ranged from 72 per cent at Eastern City and Stewart to 57 per cent at the Midwest Tech engineering school. The evidence from these studies of interrupted students thus strongly supports the hypothesis that veterans do excel nonveterans of equal ability with respect to achievement in college.

One possible interpretation of such results for interrupted veterans is that the students let down noticeably in effort during the term just prior to induction. Usually the student knew that his induction was imminent, and it was in some cases a question as to whether or not he would be able to complete the term's work. According to this hypothesis, the difference in grades before and after war service is due to a let-down in effort before war service rather than improvement after war service. Evidence available for two college groups suggests, however, that this hypothesis does not hold. The trends in average grade earned during the two semesters of the freshman year were almost the same for the veterans and their nonveteran controls. Furthermore, in all five groups definite steps were taken to ensure that the measure of ability was not biased by a possible letdown in effort during the last term in school. (A more extensive discussion of the difficulties in interpreting these results is presented on pages III-77 to III-79.)

Relation to Other Studies

Although the method employed in the present study differed in certain respects from that employed in any previous study of veteran-nonveteran differences in academic success, it is desirable to view the present results in the light of the numerous previous comparisons of veterans and nonveterans. (At the cost of interrupting the presentation of other results of this study, a fairly detailed review of other studies comparing the academic success of veterans and nonveterans is introduced at this point, since overall evaluation of the veterans' academic success is a major objective.)

The studies to be reviewed may be classified according to the specific question which each kind of study attempted to answer. The first group of studies took quite literally the question: do veterans do better than nonveterans in college work? All veterans in a particular administrative jurisdiction were compared with all nonveterans in that group with respect to college grades. The second group of studies modified the question to read somewhat as follows: other things except age being roughly equal, do veterans do better than nonveterans in college work? In the present investigation, the studies of the 20 groups which included entering freshmen fall in this category. A third group of studies asked, in effect, the question: do returning veterans do better in college after the war than they did before their wartime service? In the present investigation, the five studies of interrupted veterans belong to this category. A fourth group of studies, which emphasized the role of age in relationship to veteran-nonveteran differences in academic success, will be discussed in a later section on possible explanations of the veterans' superiority.

The initial approach to the question of how well veterans were succeeding in college took the form of inquiries directed to college presidents and other administrative officers or to college faculty members. President Walters of the University of Cincinnati queried a large number of university presidents as to how well veterans were getting along and got almost unanimously favorable opinions of the veteran students. The reports indicated that, on the average, they were doing as well as or better than their nonveteran fellow-students. A number of examples of replies to this questionnaire were reported in an address made by President Walters to a conference on veterans' education sponsored by the American Council on Education in July, 1946 (100). In a later survey based on the opinions of the presidents of 98 large universities, the results again were favorable to the veterans: they were making grades higher than the prewar average, were adjusting well, and were serious-minded (99). Dean Bender (6) reported that although it was difficult to generalize about all veterans at Harvard, the veterans had "at least done no worse than nonveterans" and that the percentage who made Dean's List records was higher than for any prewar group. Mathewson (62), on the basis of an informal survey, reported that veterans are on the whole "high-grade students" with favorable attitudes toward college work. In another early study, Young (105) surveyed the faculty of Shrivenham American University, and found that they rated their soldier-students superior in interest in academic work and in general intellectual power to their former students in American colleges.

On the basis of a questionnaire distributed in May, 1946, Kamm and Wrenn (55) reported that among 122 coeducational universities and liberal arts colleges who replied, two thirds reported that veterans were excelling nonveterans in scholastic achievement. The remaining one third reported no difference between the two groups. Fine (32) learned during a tour of colleges in the East and Middle West that veterans had impressed teachers by their maturity and eagerness and that they were earning better-than-average grades at many colleges.

These survey reports undoubtedly helped to reassure those who had feared that the "veterans' bulge" represented a threat to academic standards. On the whole, the generally favorable tone of these reports has been borne out by later, more technical studies.

A number of over-all comparisons of grades earned by veterans and nonveterans enrolled in a particular university or in a particular university division were made, especially during the academic year 1945-1946. In part, use of these broader groups was necessitated by the limited number of students available in certain finer classifications either in the veteran or in the nonveteran group. In spite of the complication in interpretation introduced by the relatively heterogeneous groups of veterans and nonveterans included, these studies served a valuable purpose in indicating the order of magnitude of the difference between veterans and nonveterans. On the whole, it became evident that the difference in academic achievement was not very large. Most, but not all, of the average grades reported favored the veterans.

A rather comprehensive study was reported by Tibbetts and Hunter (93). This study was based on the records of 857 male veterans and 846 male nonveterans at the University of Michigan during the fall term, 1945-1946. Among the six divisions studied, however, only one had more than 50 veterans and more than 50 nonveterans. In this large division the veterans averaged 2.50 while the nonveterans averaged 2.51. For all six divisions, the average grade was for veterans 2.56, for nonveterans, 2.55. Junior and senior veterans excelled the nonveterans at the same academic level; nonveterans excelled in the freshman and sophomore groups. In none of the four years did the difference exceed one seventh of a letter grade. Tibbetts and Hunter noted that freshman veterans were apparently not inferior to the freshman nonveterans in the tests of ability and achievement given at entrance.

Another extensive study was made by Thompson and Flesher (90) at Ohio State University. Grades earned during the winter quarter of the academic year 1945-1946 in agriculture, arts, commerce and education colleges were included. It was found that 1,399 freshman male veterans earned an average grade of 2.33 as compared with 2.18 for 1,072 male nonveterans. In the other three undergraduate classes, 579 male veterans earned an average of 2.75 as compared with 2.56 for 611 male nonveterans. Here, again, the maximum difference is only about one fifth of a letter grade.

Orr (66) reported average grades for veterans and nonveterans at Oklahoma Agricultural and Mechanical College in each of seven divisions during the academic years 1945-1946 and 1946-1947. He found veterans superior in all except engineering during 1945-1946 and superior in all except the Graduate School during 1946-1947. The number of students included in each comparison was not reported. The over-all average in 1945-1946 for male veterans was 2.76; for male nonveterans, it was 2.39. In 1946-1947, the corresponding figures were: male veterans, 2.53; male nonveterans, 2.42. In the absence of a breakdown of these figures by college class, the differences must be interpreted with some caution.

Atkinson (5) studied the average grades earned by groups of veterans and nonveterans during the second semester of the 1945-1946 academic year and the first semester of the 1946-1947 academic year in the University of California at Los Angeles. As in Orr's study, the pooling of results from the four undergraduate classes makes interpretation somewhat difficult. Atkinson found that in 1945-1946, the veterans excelled the nonveterans in all of the five divisions for which adequate data were available. In 1946-1947, the nonveterans excelled in the group of science majors in Letters and Science; the veterans were superior in the other four groups. The largest of the ten differences amounted to about one fourth of a letter grade.

Other less extensive studies of this general type may be summarized briefly: Riemer (73) reported a study of University of Wisconsin second-semester grades in 1945-1946 which showed veterans excelling nonveterans in each of the four class years and which showed over-all averages of 1.66 for 4,201 male veterans and 1.57 for 1,296 male nonveterans; Welborn (103) reported that 109 veterans excelled 92 nonveterans in grades earned at Indiana State Teachers College, Terre Haute, during the Winter Quarter, 1945-1946; Epler (30) reported that at Vanport Extension Center of the Oregon State System of Higher Education in 1946-1947 the average grade of 100 veterans was 2.58 while for 64 nonveterans the average was 2.47; Weintraub and Salley (102) found that the male veterans admitted to Hunter College--normally a woman's college--earned a first-semester average of 2.42 as compared with the 2.36 average earned by the freshman women, although the women had noticeably higher high school averages; Davidson (26) reported that only 13 per cent of 162 veterans failed at the University of Colorado while 18 per cent of 135 nonveterans failed; Taylor (88) found that veterans excelled nonveterans in English grades at the University of Southern California; Kvaraceus and Baker (58) reported that veterans excelled nonveterans in the final examination of an educational measurements course at Boston University; Deignan (27) found that 104 veterans enrolled in Clark College of Clark University earned a higher first-semester average in 1946-1947 than did 54 male nonveterans; and Tepping (89) found that 373 nonveterans at the University of Colorado Extension Center in Denver earned an average grade 0.26 of a letter grade higher than did the 610 veteran students. Except for Tepping's study, these studies are consistently favorable to the veteran group.

An additional study which may be included in this group was carried out by Stewart and Davis (82). This study compared veterans of World War I with nonveterans at the University of Colorado during the period 1919-1926. The veterans were compared with nonveterans in the same division who had completed the same number of quarters during the period of the study. The general average for 251 male veterans was 77.9 while that for 263 male nonveterans was 78.7. In the three divisions which included 50 or more of each group, veterans excelled slightly in the College of Engineering while nonveterans excelled slightly in Law and in Arts and Sciences. None of the differences was statistically significant.

A second group of studies of veterans and nonveterans involved comparisons between veterans and nonveterans who had been matched in various respects.

A controlled comparison of veterans and nonveterans of World War II was reported by Love and Hutchison (61) in November, 1946. In this study, each of 104 freshman veterans in the College of Education at Ohio State University was paired with a nonveteran on the basis of the Ohio State Psychological Examination, and, as far as possible, on the basis of academic program. It was not possible, however, to limit this study to male students. It turned out that the veterans earned an average grade of 2.45 as compared with 2.31 for nonveterans. The difference was not statistically significant.

Gowan (40, 41) carried out a doctoral dissertation at Iowa State College comparing the performance of veteran and nonveteran freshmen who entered college in the fall of 1945. This study included 146 veterans and 365 male nonveterans. Gowan found that in each of three divisions--engineering, science, and agriculture--the veterans excelled the nonveterans in academic grades during each of the three quarters. For the total group studied, the difference in grades was statistically significant at the 1% level during each of the three quarters. In a special analysis of first-quarter grades, application of analysis of covariance, taking ability into account, further enhanced the advantage of the veteran group. For the group of students as a whole, the nonveterans were superior to the veterans both in their mean high school average grade and in their mean American Council Psychological Examination score. The difference in the aptitude test score, however, was only about two points of raw score for the total group, and in the case of science students, the veteran group was slightly superior in this measure. Gowan's results are relatively clear-cut; however, only in the case of engineering students did the number of veterans and nonveterans exceed fifty in each group.

Clark (18) investigated the performance of veterans and nonveterans in liberal arts, commerce, journalism, and speech education at Northwestern University. Included in his final population after balancing of ability between the two groups, were 562 veterans and 272 nonveterans who entered in 1946. A check on the equating of the groups indicated that veterans and nonveterans had been satisfactorily matched with respect both to high school standing in graduating class and in scholastic-aptitude score. Clark found that during the first quarter of residence, the veterans earned a grade point average of 3.79 as compared with 3.48 for the nonveterans. He noted that this difference in the average grade between the two groups was statistically significant. He also found that only 39 per cent of the nonveterans exceeded the median of veterans in grade point average, while 64 per cent of the veterans exceeded the median of the nonveterans.

A carefully controlled study of the academic achievement of veteran and nonveteran freshmen at the State University of Iowa was carred out by Garmezy and Crose (35). In this study, which was based upon freshmen who entered in September 1946, the variables of sex, marital status, race, and college aptitude were held constant. Only single, white, male students were included in the comparison. All students in this study were enrolled in the college of liberal arts. It was found that it would be impossible to match the veterans and nonveterans with respect to age. The average grade earned by 245 veterans turned out to be 2.19 while the corresponding figure for the matching nonveterans was 2.09. This difference was not quite great enough to be statistically significant at the 5% level. The findings of Garmezy and Crose with respect to age will be discussed in a later section.

In a study based on 170 veterans and 250 nonveterans enrolled in the same mathematics course at Princeton University, Frederiksen (33) found by use of analysis of covariance technique that there was no significant difference between veterans and nonveterans in grades when account was taken of ability differences.

On the whole, the controlled studies, in which an effort was made to eliminate various obscuring influences which might affect veteran-nonveteran differences, showed an advantage for veterans over the nonveterans in academic grades. The relatively small size of the differences obtained, however, underlines the importance of careful control in the study of this problem.

Perhaps the most dramatic of the studies of veteran students were those in which the academic performance of returning veterans was compared with performance of the same students during their pre-service educational career. As it happened, however, a number of these studies did not directly take into account the possibility of an upward trend in students' grades during their college career. As a result, the differences in average grade obtained in these studies cannot be taken at full face value.

In the fall of 1946, Love and Hutchison (61) reported comparisons based on 102 veterans in the College of Education and 117 in the College of Agriculture at Ohio State University. They found that the veterans in the College of Education earned an average of 2.76 after the war as compared with 2.03 before their war service. For the students in the College of Agriculture, the postwar average was 2.86 as compared with a prewar average of 2.25. They noted that only about ten per cent of the 219 veterans did less well after the war than they did before. In another early study, Welborn (103) reported results for 107 veterans at Indiana State Teachers College in Terre Haute. He found that the gain on the average amounted to about three fifths of a letter grade. In his group about one fifth had earned lower grades after the war than before. Early in 1947, President Day of Cornell University reported that returning veterans increased their average from a value of 71.5 for the last term before their service to 78 after their return to college (77). A study made by Justman (54), of Brooklyn College students in the summer of 1946, indicated that 66 per cent of a sample of 900 returned veterans had earned better grades during the first semester after their return than in the last semester before leaving the university for service. About 73 per cent had achieved a better total record as veterans than they had in their prewar college work. In a study based on 400 veterans, again at the Ohio State University College of Education, Pultz (71) reported a gain in median grade amounting to about three fifths of a letter grade.

Hansen and Paterson (43) studied the prewar and postwar average grades of 265 veterans enrolled in the junior division of the College of Science, Literature, and the Arts of the University of Minnesota. All men in this study had been in the junior college before the war for at least two quarters and had completed two quarters in the junior college after the war. The increase in grade point average for the 265 veterans amounted to .72 grade points.

Deignan (27) compared a group of 60 veteran upperclassmen, who had completed at least a semester's work in Clark College of Clark University before entering the service and at least one semester's work at Clark since their discharge, with various groups of nonveterans whose education had not been interrupted by the war. He found that the 60 veterans showed a reliably higher average after their war service, the critical ratio being 5.00. Their gain in average grade amounted to 4.60 points; the largest gain shown by any of the other three groups was 2.71. One of the three comparison groups showed a slight decrease in average grade during the comparable period. Deignan also found a statistically reliable difference in grades earned during the early part of their college career in favor of a group of 30 men who entered college with the interrupted veterans but who were allowed to finish college before interruption, as compared with his interrupted veterans.

In a carefully controlled study of this question, Thompson and Pressey (91) used the records of 108 veterans who had completed at least four quarters at Ohio State University before entering service, who had completed at least three quarters after discharge from the service, and had been graduated. The matching group of nonveterans had been graduated during the period 1941-1946. Matching was on the basis of age at initial entry into the university, percentile on the Ohio State Psychological Examination, college, program within the college, and cumulative average at the end of the first three quarters of college work. The median grade for the last three quarters was 2.91 for the veterans as compared to 2.73 for the nonveterans. Thompson and Pressey note that for many of the veterans, the three quarters included in the measure of postwar performance the difficult first quarter after return from the service.

On the whole, the evidence regarding the improvement in academic grades following war service is distinctly favorable to the hypothesis that war service led in some way to improved performance of the student who returned. It is possible, of course, that the students who actually returned to college after their service represented a selected group; that is, they were more highly motivated or more serious, perhaps, than the veterans who failed to resume their interrupted college careers. The difficulty in interpretation arising from the fact that average grades may tend to show some upward movement even if no interruption had occurred has already been noted. Only in the studies by Deignan and by Thompson and Pressey was specific attention given to this particular difficulty. Particularly on the basis of the latter study it would appear that the net gain for postwar as compared to prewar grades for these students would be relatively small.

The studies reviewed thus far show a rather surprising degree of consistency in their general tendency in spite of the variation in procedure involved. Whether the comparison of veterans and nonveterans is based upon judgments of administrators and faculty members, on comparisons of mean grades of veterans and nonveterans in a particular administrative unit, on controlled comparisons of the two groups, or on prewar and postwar performance of the same veterans, the evidence suggests that veteran status is associated with better-than-average academic performance.

However, when the magnitude of the difference which occurred typically between veterans and nonveterans is the main consideration, the need for careful control is evident. The assumption that various conflicting determiners will cancel each other out is rather risky when differences of the size being investigated here are in question. In particular, the need for eliminating the possible effects of variations in typical grades from one division of a university to another and during the four years of the academic program is evident. Differences in ability, as measured by the usual admission data, are also sufficiently important to make their control necessary.

In the twenty entering freshman groups of the present study, when university, university division, sex, and class rank are controlled, but no account is taken of ability differences, the veterans excel the nonveterans in average grade in ten comparisons and are excelled by the nonveterans in the other ten comparisons. Part of the difference between this finding and the typical finding of the earlier studies involving direct comparisons of grades earned by veterans and nonveterans may result from the exclusion from the present study of veterans who had had a substantial amount of college training during their military service; it appears likely that more rigorous control of such matters as class rank and the division in which the students were enrolled would have reduced considerably the veterans' advantage in actual grades earned. The possibility that findings favorable to the veterans were more likely to be submitted for publication than those in which the findings were inconclusive cannot be entirely ruled out in evaluating the published reports.

When the evidence from other studies and the results of the present study are viewed in relation to each other, it appears that the veterans did do better college work relative to their ability than did the nonveterans. In the present study, as well as in most of the other controlled studies of this question, the veterans tended to have a slight advantage. It should be emphasized, however, that the advantage of the veterans, after allowance for ability differences, amounted to about one tenth of a letter grade, on the average, in 18 groups in the present study which included entering freshmen. (In two groups, letter grades were not available.) The largest difference found among these groups amounted to less than one third of a letter grade.

Evidence from the present study regarding the interrupted veterans suggested that the gain shown by these students was slightly greater. In three of these college groups where letter grades were used, the typical advantage of postwar as compared to prewar averages amounted to perhaps one fourth of a letter grade. It should be kept in mind that in this estimate account has been taken of the gain shown by a control group whose college work was not interrupted by war service.

Some Differences between Veterans and Nonveterans in Background and Attitudes

From the outset, this study was designed to go beyond veteran-nonveteran differences in academic success and to provide a broader picture of these differences. Accordingly, a questionnaire was drafted, pretested, revised, and administered in the spring of the academic year 1946-1947. A detailed description of the questionnaire and of its preparation, administration, coding, and analysis will be found in Chapter II. A copy of the questionnaire itself is included in Appendix C. The present discussion is concerned mainly with difference between veterans and nonveterans in matters covered by the questionnaire.

Veteran Characteristics

The differences between veterans and nonveterans may be interpreted more adequately if some attention is given to the service careers, educational history, and marital status of the veteran group included in this study.

The great majority of the veterans in the typical selected college group had completed between one and three years of service; on the average, only one fifth had completed three years or more of service. Almost 75 per cent of these veterans had been overseas; most of those who had overseas service reported a year or more of such duty. About 80 per cent held enlisted ratings above corporal or seaman first class; less than 10 per cent held a commissioned rank. Interestingly enough, a higher proportion reported service in the Navy than in the Army; this result is plausible in view of the large proportion of young men in the Navy and the demobilization policies of the Army and Navy. Relatively few of the veterans in this study had served in the Marines, the Coast Guard, or Field Services.

In a survey of 1,630 veterans in New York state colleges, Miller and Allen (64) found that 61 per cent had served in the Army, and 33 per cent had served in the Navy. In their study, 56 per cent had served between 24 and 39 months. The typical rank was that of sergeant. When it is considered that only 39 per cent of the students in Miller and Allen's study were freshmen, these results would seem to be reasonably similar to those of the present study.

Almost 75 per cent of the veterans reported that military service had increased their eagerness to attend college; less than 5 per cent reported a decreased eagerness. Miller and Allen (64) report an even higher figure on this point; 82 per cent reported that their service had increased their desire to attend college. These findings are in line with the observation of Kelly (57) that war seems to increase the demand for higher education.

Over one third reported that service had increased their scholastic ability; slightly less than one fourth reported a decreased ability to do college work. Almost as many veterans thought they were doing less well in college as a result of service experience as thought they were doing better.

These evaluations of the effects of service may be compared with those obtained by Cottrell and Stouffer (21) from a cross-section study made in November, 1945, based on high school graduates less than 25 years of age. Only about 40 per cent of these soldiers thought helpful effects of Army experience outweighed the harmful effects; about 55 per cent considered harmful effects predominant. Although no rigorous conclusions may be drawn from this comparison, there is some suggestion that the veterans in the present study may have taken a more favorable view of their service experiences than did the typical veteran.

About one half of the veterans in the typical group had last attended school in 1943 or 1944; less than 20 per cent reported high school attendance during 1945 or 1946. Only a small proportion of veterans in this study had participated for any length of time in a college training program during their service, since such students were deliberately excluded from the study wherever possible. Less than 15 per cent had taken one or more United States Armed Forces Institute (USAFI) courses during their service.

In this study, slightly more than 10 per cent of the veterans were married. This proportion is lower than that usually reported for veterans, a result which is presumably due, at least in part, to the limitation of the present summary to freshmen who entered in the fall of 1946. It may be noted here that Clark (18) reported that eight per cent of the freshman veterans in his Northwestern University study were married.

The veterans who were included in this summary typically had enough service, enough responsibility during their service, and a long enough interruption of their educational careers to give a fair picture of the relationship between war service and various personal qualities. (A more detailed description of these veterans is given in Chapter IV.)

Veteran-Nonveteran Differences in Questionnaire Responses

The statements in this section are based on results for male freshman veterans and nonveterans in twelve selected college groups. In general, in evaluating veteran-nonveteran differences consideration has been given to two lines of evidence. The difference between veterans and nonveterans in the median proportion of each group choosing each response provides one basis of comparison. Along with this, the consistency with which the differences between veterans and nonveterans were in the same direction in each of the twelve groups aids in identifying general tendencies. A degree of consistency defined as eleven or more differences in the same direction will arise by chance less than one time in 100. Figure 2 shows the median proportion of veterans and of nonveterans giving each of a number of questionnaire responses on which veterans and nonveterans differed consistently from each other. In addition to the responses shown in Figure 2, four responses pertaining to worry (worry about finances, about inability to concentrate, about getting to know people socially and about feelings of inferiority) also met the required standard of consistency. These responses, along with other responses pertaining to worry, are shown in Figure 3.

Differences in Background Characteristics.

When only freshmen are considered, veterans are inevitably older, on the average, than nonveterans. Our findings indicate that the typical nonveteran entered college at 18, the usual college entrance age, and that the typical veteran entered at 21--a difference of three years. Veterans varied considerably in age at entrance, as would be expected, since length of military service varied considerably. The nonveterans, on the other hand, showed very little variation in age at entrance.

With respect to other background characteristics it was found that veterans tend to have had more full-time work experience (other than military service) than nonveterans, and they were more likely to come from communities of between 2,500 and 100,000 than were the nonveterans. Their fathers in general have had less formal education than is true for the nonveterans, a result which agrees with that found by Clark (18) for parents of Northwestern University veterans and nonveterans. According to the questionnaire findings, the family income at the time of high

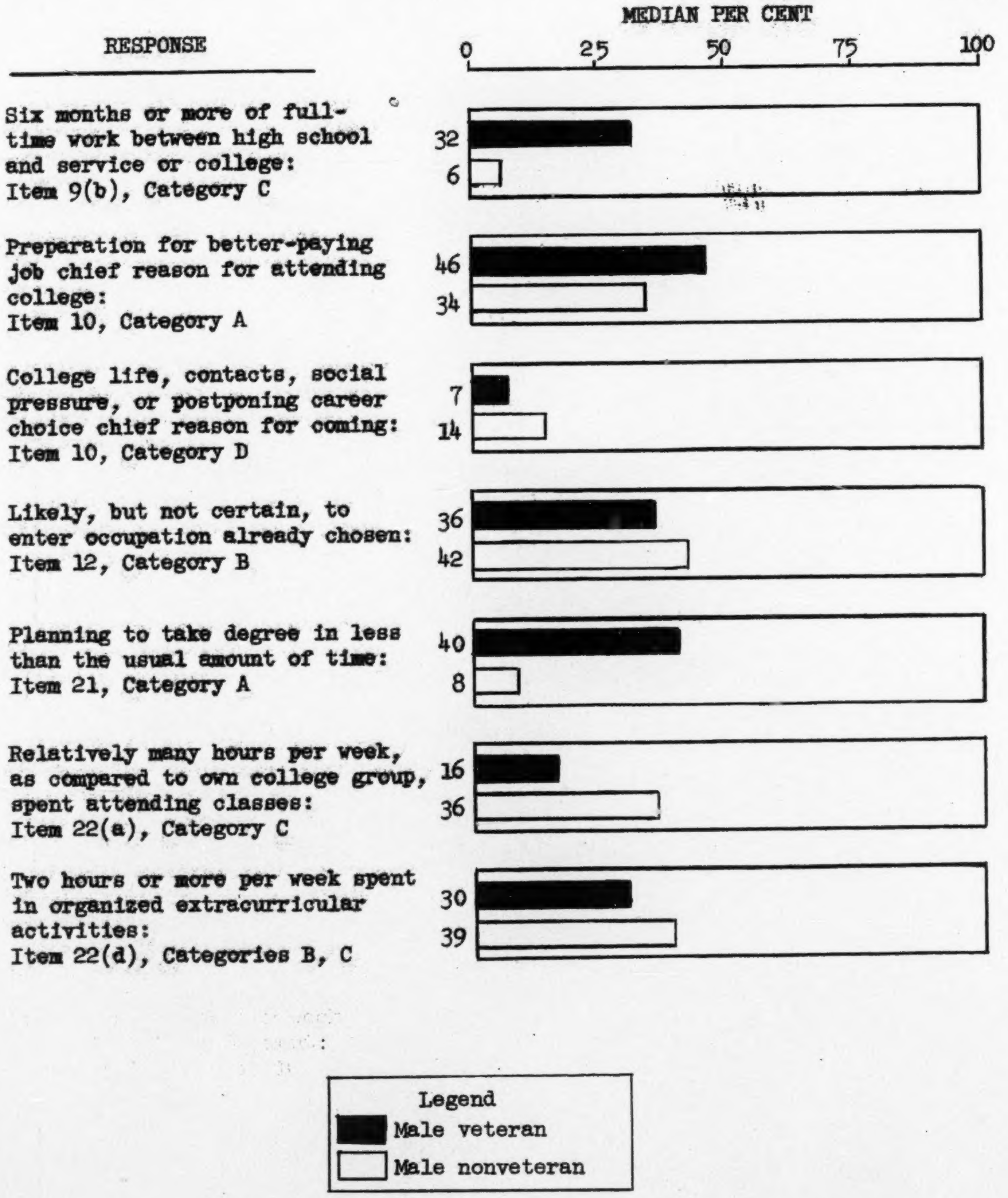

FIGURE 2 (PART 1). MEDIAN PER CENT MAKING SELECTED RESPONSES TO QUESTIONNAIRE ITEMS AMONG VETERAN AND NONVETERAN STUDENTS. (MEDIAN VALUES, BASED ON THE TWELVE BASIC GROUPS.)

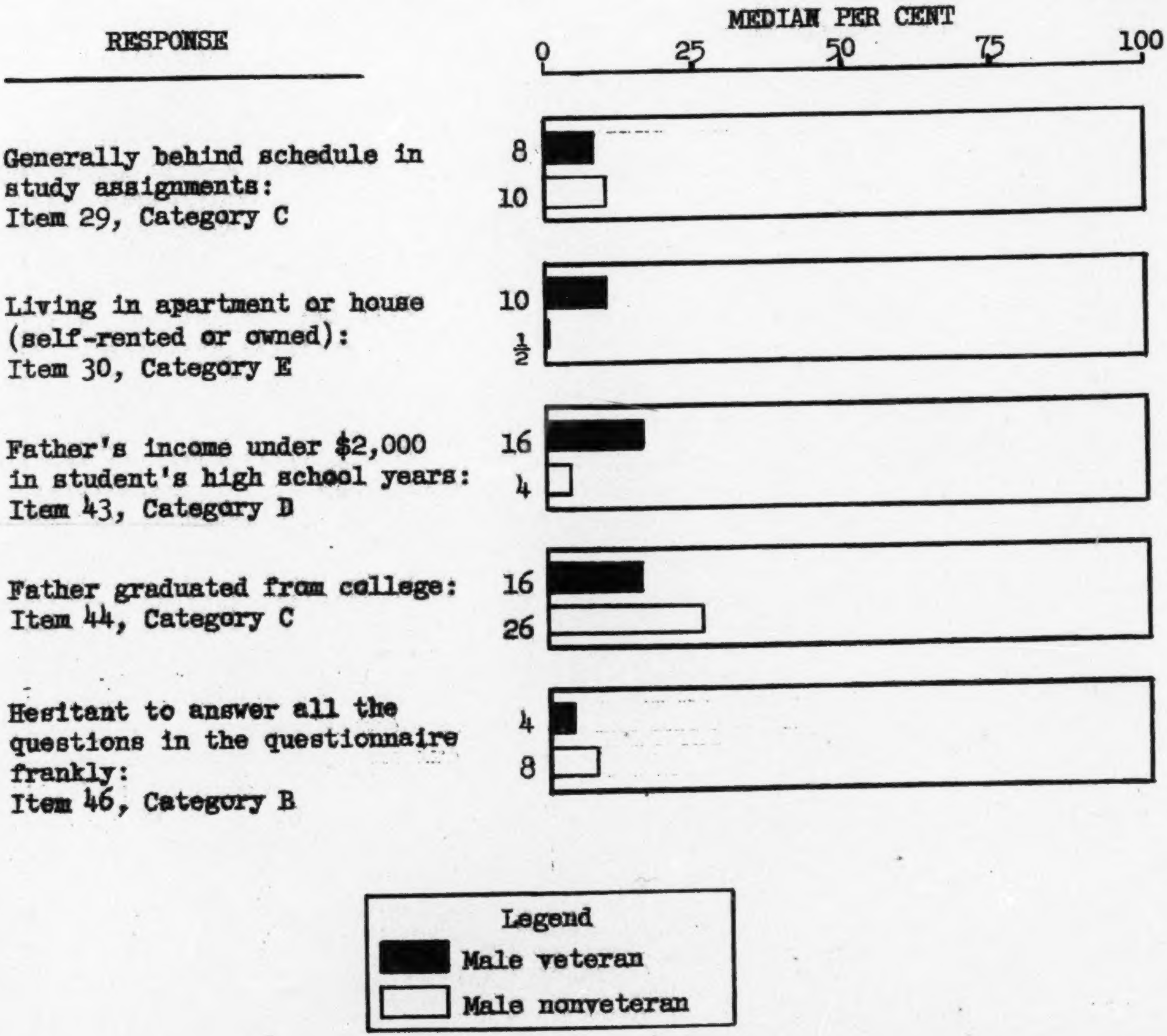

FIGURE 2 (PART 2). MEDIAN PER CENT MAKING SELECTED RESPONSES TO QUESTIONNAIRE ITEMS AMONG VETERAN AND NONVETERAN STUDENTS. (MEDIAN VALUES, BASED ON THE TWELVE BASIC GROUPS.)

school attendance was definitely lower than for nonveterans; this finding must be discounted to some extent, however, because of the general increase in income levels between the time the veterans had been in high school and the nonveterans were in high school. Veterans were more likely to be providing their own housing than were nonveterans; they were less likely to be living in dormitories than were nonveterans. When students were asked to evaluate their preparation for doing college work, the nonveterans were found more often than veterans to feel that they were very well prepared. (The detailed findings on general background characteristics are presented in Chapter V.)

Certain of these findings suggest that veterans within a particular college group came from families with less educational background and lower income than did nonveterans in the same college.

Motivational Factors. In view of the popular notion that veteran students are characterized by a greater seriousness of purpose and greater maturity, it will be of interest to examine the questionnaire evidence which bears on motivational factors. It is recognized that a questionnaire is a rather crude tool to use for the investigation of such subjective characteristics; but since we are only interested in comparing groups, where great accuracy of measurement is unnecessary, the technique may be of some value.

Some results which have to do with motivational factors may be summarized as follows: Differences between veterans and nonveterans with respect to vocational plans were generally slight although nonveterans were more inclined toward professions requiring graduate study. Veterans expressed certainty of being able to carry out their vocational plans somewhat more often than nonveterans, which is in agreement with the notion that veterans are more mature. Gowan (40) also found somewhat greater certainty of vocational plans for veterans than for nonveterans. Nonveterans were slightly more likely to consider graduation from college essential to their vocational plans than were veterans. Veterans also assigned slightly less importance to college grades in relation to the kind of opportunities available to them after college; in view of the somewhat more extended credentials which a veteran could present to a prospective employer than the typical nonveteran, it is perhaps significant that the veterans nevertheless considered college grades almost as important as did the nonveterans.

Nearly one half (46 per cent) of veterans and about one third of nonveterans in the median group gave preparation for a better-paying job as their first reason for coming to college; this is a finding of some importance. The further result that almost one third of veterans and somewhat more than one third of nonveterans gave professional training as their chief reason for attending emphasizes the prevalence of the view that college is a means of getting ahead in the world. That veterans were likely to overemphasize career preparation was noted by the Educational Policies Commission (29) in 1944, by President Stoke (78), then at the University of New Hampshire, in 1945, and by a number of other writers, including Bolte (8), Byers (15), and Humphreys (51). These predictions appear to be borne out by the findings of this study. (It may be noted that Katz and Allport (56) also found a heavy stress on college as the path to success in their study at Syracuse in 1926.) The long-range implications of this emphasis on economic gains are also of considerable significance. Bowles (11), Thompson and Pressey (91), Jordan (52), and Atkinson (3) have stressed the importance of a satisfying transition from college to an effective life-career as a major feature of the veterans' educational career, and Atkinson (4) has recently reported on the placement of veterans graduating in 1947. President Henry of Wayne University (48) has pointed out that it is not always as obvious to the student as to the educator that successful completion of college does not guarantee professional or economic success in line with the student's expectations. The recent rather pessimistic evaluation of the economic prospects for college graduates given by Harris (46) makes the heavy stress placed by the students in our study on college as a means to personal economic advancement worthy of considerable thought. One might hope of course that these attitudes changed during the last three years of college; the present study offers no evidence on this point.

It has already been noted that veterans were less likely than nonveterans to give preparation for entering a profession as their chief reason for attending college; this finding may be attributed to the greater age of the veteran group on entering college. Nonveterans were also more likely to give reasons classed as "other" in this study--social contacts, family pressure, postponing vocational choice, or coming because it was the "thing to do."

The biggest veteran-nonveteran difference was found in plans for acceleration of the college program; about 40 per cent of veterans and only about 10 per cent of nonveterans planned to graduate in less than the usual amount of time. Nonveterans were somewhat less successful in keeping up-to-date in their assignments than were veterans; the difference was slight but consistent.

Insofar as the questions permitted, the veterans did give evidence of greater seriousness of purpose than the nonveterans. They expressed a definite desire to graduate in less than the usual amount of time, even though this presumably meant reduced vacation time. Veterans did not show as great an advantage with respect to certainty of vocational choice as would be expected from their reputed seriousness of purpose; it is possible, of course, that they were more aware of obstacles in the way of obtaining their objectives than nonveterans. Veterans were no more likely to report that they usually exerted strong effort on their courses than were nonveterans; it is conceivable, however, that they had a different idea of what "strong effort" meant from the idea held by nonveterans. They were somewhat less likely to report that they were behind schedule on their study assignments than were nonveterans. Even when allowance is made for complications in interpretation, however, the differences in motivation are generally small and plausible rather than large and spectacular.

Worries. What about the worries of veteran and nonveteran college students? Some early reports indicated a certain apprehensiveness about the emotional problems of veterans, but experience with the veteran student indicated that, in the opinion of college faculties, the problems did not materialize except in isolated cases. Responses of students to various questionnaire items relating to worry and anxiety tend to corroborate this finding. For example, when a general question was asked about tendencies to feel anxious or upset, the responses showed no tendency for veterans to worry more than nonveterans; if anything, they worried less.

Figure 3 summarizes the results of a series of questions about specific sources of worry. The items are ordered with respect to their importance as sources of worry for nonveterans. It will be seen that by and large the most important sources of worry are related to academic problems--concentration, getting accustomed to college study, and deciding what course of study to follow. Ignoring financial worries for the moment, we find that emotional problems--feelings of inferiority and nervousness--are the next most common causes of worry. Lower in the list comes worries about social relationships--getting to know people socially and relations with members of the opposite sex; and far down in the list are worries about health, illness in the family, and, last of all, housing.

In only one instance does a striking difference appear between the black and the white bars in Figure 3; veterans and nonveterans differed markedly only in what the questionnaire termed "making ends meet financially." Veterans apparently worried considerably more about money than did nonveterans in spite of their allowances through the GI Bill.

Veterans worried somewhat more than did nonveterans about inability to concentrate, which agrees with reports by Cottrell and Stouffer (21) and Crespi and Shapleigh (24) that veterans reported that war experiences had made them more restless. They worried slightly more about illness or death in their family, which may reflect their greater age.

Nonveterans worried a bit more than veterans about "deciding what course of study to follow," "feelings of inferiority," and "getting to know people socially." The first of these results is consistent with the finding that veterans are more certain of their vocational goals, and does suggest somewhat greater "maturity" on the part of the veterans. The tendency for nonveterans to worry more about feelings of inferiority may merely be a function of their presence on the campus with the veterans; an 18-year-old freshman, just out of high school, might be expected to feel inferior in the presence of a group of combat veterans. The finding of Cottrell and Stouffer (21) that 51 per cent of veterans under 25 thought that Army service had increased their self-confidence, and the report by Crespi and Shapleigh (24) that 80 per cent of 199 Princeton veterans thought that service experiences had made them more independent are relevant here. Although this result tends to justify the observation expressed by Steele (81) and Little (60) that veterans' preferences of various kinds may have had adverse effects on the young nonveterans competing with them, the difference is so slight, however, as to support the view of Strom (84) that nonveterans as well as veterans benefit from going to school together.

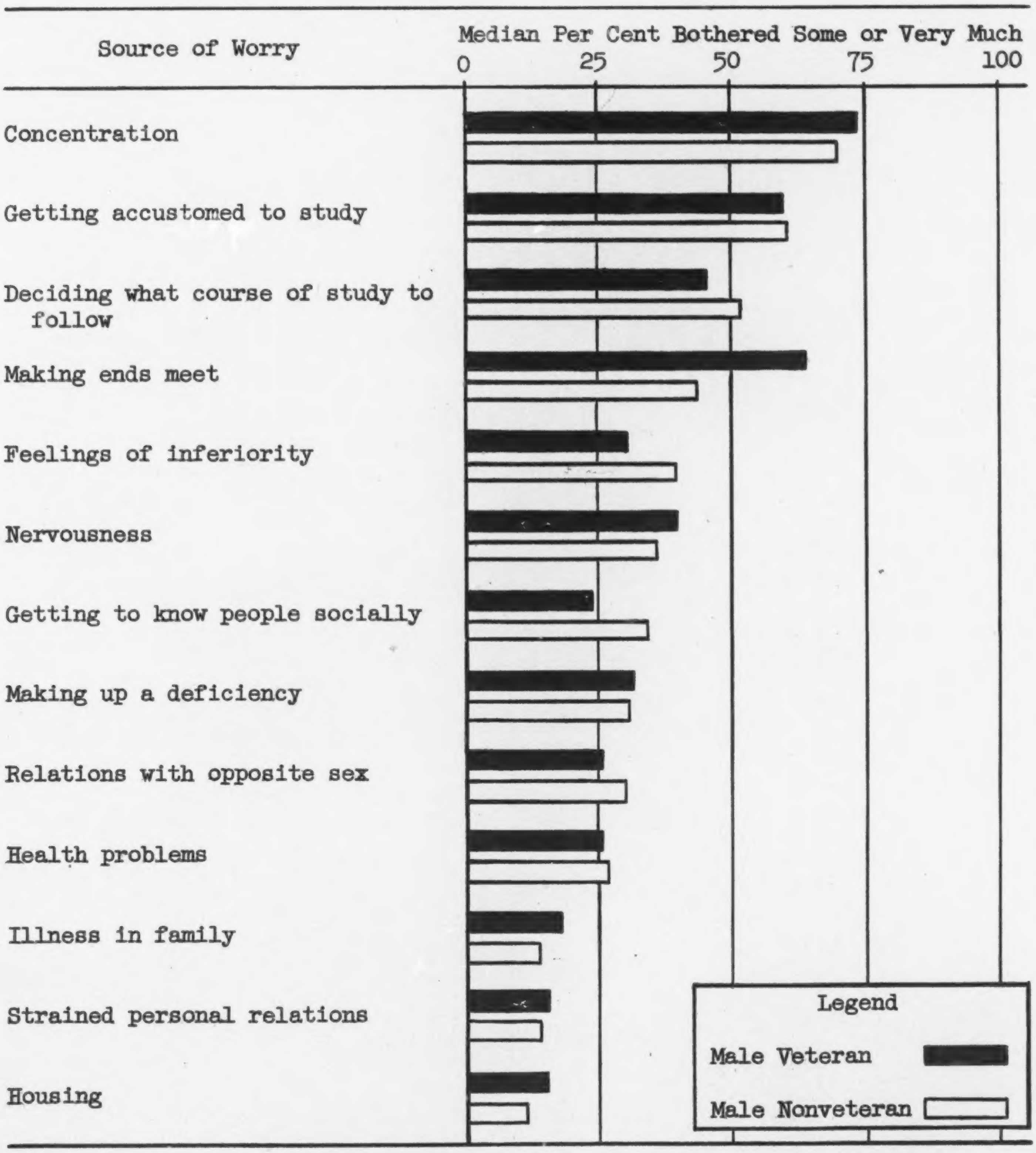

FIGURE 3. MEDIAN PER CENT OF VETERAN AND NONVETERAN MALE STUDENTS BOTHERED BY VARIOUS PROBLEMS. (MEDIAN VALUES, BASED ON THE TWELVE BASIC GROUPS.)

That veterans are concerned about financial problems agrees with a number of reports that the veterans were finding it difficult to live on the allotments provided. In the fall of 1946, Cronbach (25) noted a study by Spurr which showed that average expenses of veterans were running above the amounts provided by the GI Bill; School and Society (79) also presented a summary of Spurr's study. President Walters (99) told the American Association of Colleges early in 1947 that relatively few of the single men were able to live on their GI subsidy and that the financial situation for the married veterans was considerably worse. In the fall of 1947, Little (60) reported that veterans at the University of Wisconsin were spending some $40-65 per month in excess of their subsistence allowance. Aaronson (1) reported a questionnaire survey of students who failed to return to the University of Minnesota at various quarters of the academic year 1946-1947. Of those returning questionnaires, 41 per cent of those who failed to return in the fall of 1947 reported inadequate subsistence payments as a major reason for their withdrawal. The corresponding figure for the fall of 1946 was 31 per cent. Early in 1948, Strom (85) reported on the basis of a nationwide survey that both married and single veterans had average expenses well above the GI subsistence allowance. It is apparent, then, that the GI Bill, however beneficial, did not typically free the veterans from economic worries.

The general impression which one gains from the information about worry is that veterans and nonveterans are pretty much alike with regard to both amount of anxiety and things worried about. There is one notable exception, and that is worry about making ends meet. In addition, however, the tendency for veterans to worry more about inability to concentrate, and about illness or death in their family, and the tendency for nonveterans to worry more about feelings of inferiority, about choosing a course of study, and about getting to know people socially are sufficiently consistent in the twelve college groups to be statistically significant.

Expenditure of Time. Another area of inquiry had to do with how veteran and nonveteran students spent their time--how many hours per week were devoted to attending classes, studying, athletics, extracurricular activities, social affairs, and so forth. It was thought that such information might throw some light on the motives and interests of veterans and nonveterans and thus might help to account for the difference in achievement relative to ability which was found between veterans and nonveterans.

The findings may be summarized briefly. Nonveterans reported spending about two hours more per week attending classes, laboratories, and other course conferences; presumably this difference (which was verified for two institutions on the basis of information from transcripts) is due to the exemption of veterans from the usual physical education or military science requirements. On the other hand, veterans reported a slightly greater amount of time spent in studying; the difference on the average amounted to slightly more than one hour per week, a finding which agrees with that of Gowan (40) at Iowa State. It is probable, of course, that a more elaborate plan for investigating study hours would have yielded more accurate results; and a more intensive inquiry into study methods and degree of application during study might have been particularly significant in accounting for veteran-nonveteran differences in achievement. One comparison of our results with those of Crawford's careful investigation (23) at Yale University, done nearly 25 years ago, may be mentioned here. Crawford found that Yale freshmen in the Class of 1929 reported a mean of 23.3 hours per week spent in study. The colleges in the present study most nearly comparable to Yale are Adams, where veterans had a median of 23.5 hours per week and nonveterans had the same median, and Stewart, where veterans had a median of 22.7 hours per week and nonveterans had a median of 21.6. In many respects, this agreement in results may be considered remarkable.

Early reports that veterans were participating very little in extracurricular phases of college life were not confirmed by this study. Insofar as athletic activities and physical recreation are concerned, veterans were apparently devoting only slightly less time than nonveterans to such activities. Veterans did show a consistent tendency to take less part than nonveterans in other organized extracurricular activities; 70 per cent of veterans spent one hour or less per week as compared to about 60 per cent of nonveterans. About 15 per cent of veterans and about 20 per cent of nonveterans were devoting four hours or more per week to such activities.

With respect to leisure activities, veterans showed a slight tendency to spend more time than nonveterans on social activities (but not enough more to indicate any appreciable number of free riders), and a slight tendency to spend more time on voluntary reading or study. Nonveterans, on the other hand, were more likely to spend more time on paid employment and in attending public lectures, concerts, and other cultural activities than were veterans. Time spent on bull sessions was about the same for both groups.

The evidence reviewed above suggests that there is some tendency for veterans to take a slightly more serious attitude than nonveterans toward their academic work. Apparently veterans had slightly more free time than nonveterans at their disposal, since the course load tended to be light, and they were less likely to have a part-time job. They were somewhat more likely than nonveterans to spend their free time in studying and somewhat less likely to spend it on organized student activities, but the differences are typically small.

Attitudes Toward the College Environment. In still another series of items, students were asked to indicate their attitudes toward college courses, instructors, study facilities, and toward their university and the kind of education they were getting in its more general aspects. The attitude of students toward various aspects of the college environment is a matter of considerable concern in evaluating the adjustment of veterans to college. Differences between veterans and nonveterans were typically so small that they can be treated together in the discussion that follows.

Taken as a whole the findings indicate that the typical student is fairly well satisfied with his college. A substantial minority, comprising perhaps one fifth of the students, appeared to be somewhat dissatisfied and roughly the same proportion were rather enthusiastic about their college program. A majority thought that most of their instructors were good teachers. Only about one student in ten thought that his study facilities were "quite unsatisfactory." Nearly all students were in the school or division of their choice. A majority of the students definitely preferred their own college to any other, although there was considerable variation in the proportion of students who preferred their own institution to any other. Thus, in spite of the competition for admission in the fall of 1946, most students actually in college the following spring were reasonably well satisfied. This finding tends to provide indirect support for the view expressed by Russell (76), on the basis of a survey of officials, that substantially all qualified students were being accommodated by the colleges. Evidently the overcrowding did not result in a large number of students enrolled in one college or division but wishing to be in another. Of course, if many veterans refrained from entering college because they could not secure admission to the "name" college of their choice, as suggested by Clausen (19), the present figures would present a somewhat overoptimistic picture of the success of the colleges in meeting the needs of the total veteran group.

Students were also given an opportunity to suggest changes in the college which would help them to get what they were after in a college education. About six out of every seven students made one or more suggestions. The most commonly given suggestions were for better instructors or courses, fewer (or different) required courses, changes in general requirements, especially with regard to grades and examinations, and more courses, more teachers, or more classrooms. (This last type of suggestion undoubtedly reflected the crowded condition on college campuses at the time.)

Howard (50), on the basis of questionnaire replies and letters of 4,000 former University of Illinois students in the services in the late summer of 1944, Justice (53), on the basis of questionnaires returned by 49 veterans enrolled in 10 colleges, and Morris (65), on the basis of interviews with students in three New York City universities in the fall of 1946 found about the same major suggestions as those reported in the present study. Better teachers, better instruction, and modification of course requirements were prominent in their findings. Since none of these studies considered the attitudes of nonveterans, however, the extent to which these responses were typical of all college students was not evident. Vinocour (98) on the basis of informal contacts with veterans argued that veterans were greatly dissatisfied; his conclusions were seriously questioned, however, by Ansley (2), Bush (13), and Coulton and Justman (22). The findings of the present study tend to agree with the more moderate views expressed by Vinocour's critics.

Although Strom's (87) questionnaire study of November, 1947, is not strictly comparable to the present one, it may be noted that he found that inadequate courses and instructors, financial difficulties, and large classes were the most prevalent sources of irritation to veterans. He also found, on the basis of replies to a specific question, that about one third of veterans in liberal arts colleges, and about one fifth of veterans in other types of colleges (except for teachers colleges) judged that a majority of their courses did not pertain directly to their vocation.

In the typical college group in this study, it was found that about one student in four expressed a need for fewer or different required courses. This finding appears to be pertinent to the timely question of general and special education. General Education in a Free Society (47), A Design for General Education (63), the Report of the President's Commission on Higher Education (97), and more recently President Conant's Education in a Divided World (20) have focussed attention on the need for a proper balance between specialized education directly connected with career plans and general education leading to individual development as a person and a citizen. Many writers called attention to the needs of veterans (and other students) for a realistic curriculum that would be clearly relevant to their plans and goals; among these were Peatman (68), Little (60), the Committee on College Training of the Connecticut Reemployment Commission, cited in Hollis and Flynt (49), Feder (31), Ritchie (74), Rogers (75), and Ransom (72). The results of the present study suggest that for veterans and nonveterans alike, a substantial number were taking courses whose usefulness was not apparent to them. Whether this resulted from an excessively narrow view of the kind of education they wanted or from instruction which did not make clear the importance of what they were expected to learn, or from a combination of these and other causes is not clear. The presence in our colleges of students who find some phase of their course program undesirable is undoubtedly familiar to the colleges; the fact that a substantial proportion of students made specific comments in this matter and that overachievers were about as likely as underachievers to write these comments are deserving of the thoughtful consideration of college administrators, curriculum committees, and faculty members. Research with respect to educational method, as urged by Gilmer (37), and with respect to essential content, as urged by Brett (12), might well contribute to a narrowing of the gap between some students' conception of what they think they need and what they are getting as college freshmen.

A few differences between veterans and nonveterans may be noted. The veterans tended to give slightly less favorable judgments of their teachers than did the nonveterans, and more of the nonveterans commented on the need for better guidance and placement services. Otherwise the two groups could scarcely have been more similar in the frequency with which they made various comments. This result is in general agreement with the findings of Gowan (40) at Iowa State College, although the nonveterans in Gowan's study were slightly less critical than the veterans.

Attitude Toward the Questionnaire. One questionnaire item remains to be discussed. The last item in the questionnaire asked, "How did you feel about answering the questions contained in this questionnaire?" More than ninety per cent of the students, in a typical college group, checked the response, "Felt I could answer all frankly." A bit more than five per cent were "hesitant to answer all frankly," while less than one per cent "felt it foolish to answer some frankly." (It was noticed that a number of the students mentioned specifically that they were hesitant about answering the item about father's income.) Although the percentages were almost the same for veterans and nonveterans, nonveterans tended to be more hesitant about answering all questions frankly. Apparently the students generally accepted the questionnaire in good faith and did not try to distort their views. However, this result cannot be accepted as proof of the honesty of the responses; if a student wished to misrepresent himself he could do so on this item just as easily as on any other. Nevertheless the answers to the questionnaire items hang together generally in a way which in itself is evidence that students tended to answer the questions sincerely.

Summary. The survey of veteran-nonveteran differences with respect to a variety of characteristics as assessed by means of the questionnaire has revealed that the similarities far outweight the differences. Veterans are older, of course; this is by far the most clear-cut difference and the only one where there is very little overlap between the two distributions. There are suggestions that veterans have less family resources behind them: they worry more about finances, are more likely to have been employed full-time, and have less-well-educated fathers. There are also some indications that veterans are more "mature" than nonveterans: they are a bit more certain of their vocational objectives, they worry less about deciding on a course of study, and they are less concerned about feelings of inferiority and about social adjustment. Some evidence that they have a greater "seriousness of purpose" is provided by the questionnaire responses: they study a little more than nonveterans and spend less time on organized extracurricular activities. On the whole, they attached less importance to college grades and to college graduation than the nonveterans. Motivation is slightly different: veterans attend college in order to get a better-paying job somewhat more frequently than nonveterans, and less often to prepare for a profession. A somewhat lighter course load may give the veterans a slight advantage; but the veterans far more often than the nonveterans plan to accelerate their college program.

If these characteristics possessed by veterans more often than nonveterans are those which are associated with a tendency to "overachieve" in college, then the reasons for the veteran superiority in grades relative to ability will be clearer. In the following section we will inquire into the problem of what characteristics are related to Adjusted Average Grade.

Who Are the Overachievers?

As in the extensive pioneer study carried out by Crawford (23) in 1926, the plan of the present study called for relating information about students obtained from a questionnaire to their success in college. In this study, first-year average grades, adjusted to allow for ability differences, were generally used as the criterion measure. For veterans and nonveterans separately, in each of sixteen college groups, the mean Adjusted Average Grade earned by students giving each questionnaire response was computed. The use of Adjusted Average Grades is especially convenient because this procedure makes it unnecessary to consider whether the group selecting a particular questionnaire response is superior or inferior in scholastic ability as measured by tests and high school average.

Two different methods were used in evaluating the significance of differences in mean AAG. One was an adaptation of the F-test; this test was applied to the veterans or nonveterans in each separate college group in order to determine whether the mean AAG of those choosing a particular response is significantly different from the mean AAG of students who chose other responses to an item. The other approach to the study of significance was based on the consistency in the direction of the differences for veterans and nonveterans separately in twelve selected college groups. In this summary, primary consideration has been given to the second approach; the results of the F-test are mainly useful in identifying characteristics associated with overachievement in a particular college group.[1] (See Chapter II and Appendix B2 for a more complete description of the methods employed in this part of the study.) The specific evidence on which the following statements are based will be found in Chapters IV through X and in Appendix A.

Background Factors

With respect to background factors, the following groups of veterans earned higher grades relative to ability than did veteran students in general:

1. Veterans who had last attended high school six years or more before entering college.
2. Veterans who were married.
3. Veterans who had had three years or more of active duty.
4. Veterans who had not served outside the United States, either during or after hostilities.

Although data on last year of high school attendance and on marital status were collected for nonveterans as well as veterans, the data did not permit any useful analysis for the nonveteran group, since virtually all the nonveterans entered college directly from high school and were single.

In an earlier study at the University of Pennsylvania, Frederiksen (34) found that freshman veterans who had been out of school longer earned higher grades than those whose schooling had been interrupted for a shorter time. The finding that married veterans did better academically than unmarried veterans is in line with the results of several other studies. Early in 1947, Riemer (73) reported that married veteran men were making higher grades than single veteran men at all four undergraduate class levels in the University of Wisconsin. His study was based on grades earned during the second semester of the academic year 1945-1946. He also reported, although on the basis of decidedly fewer cases, that married veterans with children, living in the trailer camp, earned somewhat higher average grades than married veterans without children, also living in the trailer camp. This latter finding was not consistent at all four class levels, probably because of the small number of cases available for study. Thompson and Pressey (91) found that at Ohio State University the average grade for 444 married veterans was 2.69 as compared with 2.48 for 1,584 single veterans. Veterans having children excelled the married veterans by only .03 in the same study, with respect to average grade. Only in the study by Thompson and Pressey was specific attention given to the question of aptitude differences. Their finding that the married veterans had a median aptitude test percentile rank of 51.4 as compared with 50.2 for the single veterans suggests that the difference was not primarily a matter of aptitude differences. Epler (30) and Orr (66) also reported an advantage for married veterans as compared to single veterans in college grades. The possibility that the lumping of married students and single students enrolled in different class years and also in different university divisions into a single over-all comparison may have obscured the basic differences between the two groups makes rigorous interpretation of these studies difficult.

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[1] Relating the findings of the present study to previous work in this broad field is beyond the scope of this report. Summaries of this literature have been prepared by Harris (44, 45) and Borow (9, 10).

The finding that the "stateside" veteran tended to overachieve would seem to contradict the rather plausible hypothesis that the superior veteran students would be those who had the broadest experiences, travel, and combat.

With respect to age, the following groups were found to excel their fellow students in Adjusted Average Grade:

5. Veterans who were 23 years of age, or older, when they entered college as freshmen.
6. Nonveterans who were 17 years of age, or younger, when they entered college as freshmen.

The finding that for veterans greater age and for nonveterans lesser age is associated with high AAG seems paradoxical at first. The findings are reasonable, however, when viewed in the light of the different selective factors that were presumably operating. For nonveterans, the relationship is undoubtedly a reflection of the usual finding that scholastic ability and age are negatively correlated in a secondary school population. This negative correlation results from a tendency to accelerate the best pupils and retard the poorest; the youngest nonveterans are continuing to show in college the same characteristics which caused their arrival in college at an earlier age.[2] Among veterans, selective factors of a different sort are presumably operating. The veteran who enters college at 23 would normally be 27 when he graduates; such a student would probably not enter college at all unless he were very strongly motivated to do academic work or had unusual incentives to go to college. Thus a process of self-selection may be presumed to account for the relationship between age and AAG for veterans.

Three additional groups which tended to overachieve were:

7. Nonveterans who came from a city of over 100,000 population.
8. Students who came from a family whose income was under $2,000 a year.
9. Students (in seven out of eight possible comparisons in three universities having relatively many private school graduates) who had attended a public school.

What kind of student earns high grades relative to ability? It is difficult to write a single generalization which covers all the diverse characteristics mentioned above; but it is hard to escape the impression that the overachieving student is the one who has had the most to overcome in the way of economic and social barriers to college. More will be said about this in a later section.

Some Factors Related to Motivation

Although knowledge of a student's motivation obtained from a questionnaire has obvious limitations, the following groups were identified as overachievers from their questionnaire responses.

1. Students who went to college because they felt that a college degree was necessary in order to enter a chosen profession.
2. Students who planned to enter a profession requiring college graduation or graduate study.
3. Students who were almost certain that they would do the kind of work that they planned to do.
4. Students who were majoring in a school or division which represented the field of their first choice.

So far as the above generalizations are concerned, they agree in indicating that the student who earns high grades relative to his ability tends to be one who plans to enter a profession which requires college or graduate training and who is reasonably certain of his vocational objective. In view of the importance of college grades for admission to graduate programs, the tendency to overachieve may represent a realistic attitude toward the problem on the part of these students.

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[2] The tendency for younger students to do well in college is brought out clearly in a recent review of the literature in *Educational Acceleration* by Pressey (70).

Worries

Amount and kind of worry also appears to be related to Adjusted Average Grade. The following groups of students tended to achieve higher grades relative to ability than did their fellow students.

1. Students who said that they seldom or never felt worried or anxious and upset.
2. Students who were bothered little or not at all about being unable to concentrate.
3. Students who were bothered little or not at all about getting accustomed to college study.
4. Students who were bothered little or not at all about trying to make up a deficiency in preparation for some course.
5. Students who were bothered little or not at all about trying to decide what course of study to follow.
6. Students who were bothered little or not at all about making ends meet financially.
7. Students who were bothered little or not at all about feelings of inferiority, inability to compete with others or to live up to their own standards.
8. Students who were bothered some, or bothered very much, about getting to know people socially.

By and large, the overachieving student is one who is relatively free from worry. This generalization holds both for generalized worry without regard to nature of the thing worried about, and for a number of specific sources of worry. In view of the fact that the most common source of worry was the student's own scholastic adjustment, one should not assume that freedom from worry is a causal factor; if anything, it may be the other way around. The only exception is that worry about social relationships is associated with high rather than low grades relative to ability; this finding is in line with the possible tendency for overachievers to be less socially inclined than underachievers.

The fact that freedom from financial worry is associated with efficient use of scholastic abilities may have some significance as far as scholarships and other financial aid are concerned. It should be noted, however, that the relationship is not very marked, possibly because for some students it may involve adverse economic circumstances, for other students merely poor planning of expenditures. In some instances, since large scholarships are awarded to students of high promise, this selection may lead to relative freedom from financial worry as well as academic success.

Expenditure of Time

With respect to variations in how students spent their time, the following groups of students were found to earn high grades relative to their scholastic ability:

1. Students who spent a greater amount of time than the average student attending classes, laboratories, and other regularly scheduled course conferences.
2. Students who spent a greater amount of time studying than the average student.
3. Students who spent a moderate amount of time in bull sessions.
4. Students who spent less time than the average student in social activities and recreation--dates, parties, movies, etc.
5. Students who attended evening lectures given by visiting lecturers or local faculty members, but not required by any specific course, more frequently than the average student.

The evidence from the study of how students spent their time thus shows that the academic overachiever was likely to take more courses, generally studied more than the average student, attended more evening lectures, and spent less time on such "frivolous" activities as going to parties and movies. He did engage in bull sessions, but in moderation. He seems to have been a pretty serious sort of fellow with definite academic interests.

Some Ambiguous Findings

The questionnaire was filled out by the students in the spring of 1947, near the end of the academic year. By this time the students knew their first-semester grades or, in colleges with a quarter system, their grades for the first two quarters. In addition, they knew their grades on midterm examinations and quizzes for the final term. This knowledge must have had some effect on the way students answered certain of the questionnaire items, and, since grades correlate rather highly with Adjusted Average Grade, it had an effect on certain of the relationships with which we are concerned in this section. It should be stressed that although Adjusted Average Grades have a correlation of zero with the predictors used in computing them, they correlate highly with the measure of success.[3] For certain kinds of items, such as those concerned with year of birth or amount of time spent in attending classes and labs, the knowledge of grades would presumably have no effect on the answers given. But on other types of items the knowledge of grades is possibly a very important factor. For example, when a student is asked how well he was prepared, by virtue of previous education and experience, for getting the most out of his college course, the failing student may be tempted to think that it was poor preparation that caused his trouble while the high ranking student may generously assign some of the credit for his achievement to his (presumably) good preparation. This tendency to rationalize may be especially serious with the failing student, who may embrace any plausible suggestion as the reason for his poor performance.

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[3] For example, if the multiple correlation of the predictors with grades is .65, the Adjusted Average Grades will correlate .76 with the original grades. Even where the predictors correlate .71 with grades, the Adjusted Average Grades correlate .70 with the original grades. In general, the sum of the squares of the two coefficients will equal 1.00, which is reasonable, since Adjusted Average Grade includes all the variance in grades which is not accounted for by the predictors.

There is obviously no way to tell with certainty for which items this kind of rationalization was an important factor and for which items it was not. One can only look at the item and the results and exercise his best judgment. The following items are related to Adjusted Average Grade but, in the judgment of the writers, may at least in part be reactions to success or failure rather than characteristics which have contributed to producing good or poor work. In any case, the following groups tended to have better-than-average grades relative to ability.

1. Students who believed that they were very well prepared, by virtue of previous education and experience, for getting the most out of their courses.
2. Students who believed that they must have a college degree in order to do the kind of work they were planning to do.
3. Students who believed that college grades would be very important in relation to the kind of opportunities available after college.
4. Students who found it less difficult to keep up in their work than they had expected.
5. Students who claimed that they usually exerted strong effort to do good work in their courses.
6. Students who claimed that they usually had their assignments done before they were due.
7. Students who believed that worry had not interfered at all with their college work.
8. Students who claimed to be really interested in a majority of their courses.
9. Students who reported that they were enjoying their studies as much as or more than they had anticipated.
10. Students who claimed that they seldom or never felt that the things they were studying in college were not worth the time spent on them.
11. Students who felt that on the whole they were very well satisfied with the kind of education they were getting.
12. Students who believed that most or all of the faculty members who had taught their courses were good teachers.
13. Veterans who felt that their experience while in the service made them more eager to go to college.
14. Veterans who believed that their military service experience had increased their ability to do good scholastic work in college.
15. Veterans who believed that they were doing better in their college work than they would have done if they had gone on with their schooling instead of going into the service.

Although it would perhaps be useful to a counsellor to know that these attitudes were associated with earning good grades relative to ability, the interpretation of these characteristics is made ambiguous by the possibility that their relationship to Adjusted Average Grade might be much less close if the student did not know how well he was succeeding in college.

The GI Bill: Who Goes to College?

In 1938, Learned and Wood (59) in The Student and His Knowledge, reported that among 4,000 students accepted by Pennsylvania colleges, there were nearly 1,000 who made test scores as seniors in high school lower than the average high school senior who did not go on to college. Moreover, among the seniors who did not enter college, there were some 3,000 who scored above the average of those who did enter. That many high school graduates of high ability do not enter college has been demonstrated by a number of other studies as well.

The Report of the President's Commission on Higher Education (66), the Harvard Report (47), and Education in a Divided World (20) have recently called attention to the relevance of such findings to the general question of equality of educational opportunity. Science, the Endless Frontier (14) emphasized their relevance to the problem of securing an adequate supply of professional and technical personnel.

What would happen if a substantial number of students who otherwise could not have attended college were given financial aid which made such attendance possible? How would such students compare with the usual student body of the college? Certain findings of the present study have a bearing on these questions. These findings have to do with the characteristics of students who were enabled to attend college by the educational provisions of the GI Bill.

The provisions of the GI Bill undoubtedly changed the educational plans of veterans in a variety of ways. Some were enabled to go to college who otherwise would not have attended; others attended a college or university outside their home community rather than one at home, or shifted from a less expensive to a more expensive college. In the questionnaire employed in this study, several items were included in order to investigate the influence of the GI Bill on college attendance.

The veteran students were asked, "Do you think you would have come to college after completing your military service if the financial aid provided by veterans' benefits had not been available to you?" The four responses used in the analysis were (A) yes, I am quite sure I would have come anyway; (B) I probably would have come, but I'm not sure; (C) I might have come, but I probably would not have come; and (D) no, I am quite sure I would not have come to college.

In a typical college group about 20 per cent of the veterans were apparently influenced appreciably by the GI Bill (or other veterans' benefits) in their decision to enter college. About ten per cent of the veterans definitely would not have come and another ten per cent probably would not have done so without such financial assistance. The proportion in these categories varied widely, however; in some colleges only one in a hundred was influenced by the veterans' benefits, while in others more than a third of the veterans definitely or probably would not have come to college without the GI Bill. The over-all value obtained in this study agrees well with the findings of a survey conducted by Strom (86), reported in April, 1948. In his study the proportion of veterans who reported that they would not have attended without federal aid was approximately 20 per cent in state universities, private and men's schools, municipal universities and liberal arts colleges. About 5 per cent, in addition, reported that they did not know whether or not they would have attended without federal aid. Strom reported that the percentage who would not have attended among students enrolled in junior colleges and teachers colleges was about 30 per cent. It should be noted, however, that Strom's study sampled all veterans, not freshmen only.

In interpreting these proportions, it should be kept in mind that the GI Bill, however generous and unprecedented its provisions, did not eliminate but only lowered financial barriers to higher education. As President Stoddard of the University of Illinois (83) recently pointed out, in another connection, a large part of the cost of higher education to a student is the income foregone by not holding a full-time job. A comparison of GI benefits with the earnings which bright and healthy young men could have earned in industry indicates that most if not all veterans made some financial sacrifice while attending college.

What kind of student was brought to college by the GI Bill? The evidence favors the conclusion that they were quite similar to their veteran student classmates, who would have gone to college anyway, in academic performance relative to ability. The slight difference that was found showed that those veterans who definitely would not have attended college without the GI Bill were superior in Adjusted Average Grade. So far as measures of ability are concerned, differences tended to be slight and did not consistently favor any one category, although there was some indication that those who would definitely have gone to college even without the GI Bill were slightly higher in ability measures than the remaining veterans. It was further found, using data from the university which contained the largest number of veterans who would not have gone without GI aid, that the relationship between ability measures and freshman average grade is essentially the same for both veteran groups--those who certainly or probably would have gone and those who certainly or probably would not have gone without the GI Bill. The same regression equation was found to be appropriate for use with either group.

Using data from two colleges, an investigation was also made of the differences between the two kinds of veterans--the "would have gones" and the "would not have gones"--with respect to other characteristics assessed by the questionnaire. Differences which were statistically significant (at at least the 5% level) at both institutions are reported here. It was found that students who were influenced by the GI Bill to attend college were older, had been out of school longer, had had a longer period of military service, and had served overseas longer. Their fathers had had less formal education and probably were less well-off financially. These veterans were more likely to be married and were less likely to be planning to enter a profession than were the other veterans. There is, to be sure, considerable overlapping between the two groups with respect to most of these characteristics. When veterans who would not have come were compared with male nonveterans, the differences were ordinarily greater than those described above and in the same direction. The veteran-nonveteran differences thus appear to be enhanced when only the "would not have gone" veterans are considered.

When veterans were asked, "...do you think you actually would have gone to college if you hadn't entered military service?" their responses were distributed in about the same manner as for the item relating to the GI Bill. The relation of these items to each other and to AAG suggests that those students who would not have gone without the GI Bill tend to be the same students as those who would not have gone if they hadn't entered military service. (The group of students who would have foregone their prewar college plans if there had been no GI Bill when they were discharged were evidently balanced by a group who had not planned to go before the war but who would have attended after military service even without the GI Bill. Both of these atypical groups were presumably small.) It is interesting, however, that for this phrasing of the question, a significant association exists between the would not have gone response and superior AAG.

No distinction has so far been made between disabled veterans drawing benefits under Public Law 16 and the veterans drawing benefits under other laws, principally Public Law 346 (the GI Bill). The veterans were asked, in the questionnaire, to state whether or not they were drawing benefits and, if they were, under what law or laws. Fewer than five per cent of the veterans drew benefits under PL 16. No significant difference was found between the disabled veterans and the other veterans in Adjusted Average Grade.

Fewer than five per cent of the veterans were drawing no veterans benefits. Since men who served in the merchant marine and field services were considered to be veterans in this study, it is clear that a very small proportion indeed of those eligible were not drawing benefits. It appears likely that at least a few of the eligible veterans were saving their educational benefits to use for later professional training. Those not drawing benefits appeared to be slightly superior in mean Adjusted Average Grade, although their superiority cannot be said to be significant in a statistical sense.

When it was first suggested that a study be made of some of the effects of lowering economic barriers to higher education through the provisions of the GI Bill, considerable thought was given to procedures to be used. In these discussions it was agreed that it would be desirable to distinguish three kinds of veteran students: (1) those who were economically able to go to college and who would have gone without subsidy; (2) those who could not have gone to college, because of economic factors, without the educational benefits of the GI Bill; and (3) the "free riders." The free riders were the veterans who took advantage of the GI Bill to attend college for a year purely for the good times and amusement which could be associated with such an experience. No satisfactory method was found for identifying the free riders, however; and as has been seen, no use was made of such a group in the analysis of the problem. There is no reason to believe that the number of free riders among the veterans was any greater than among the nonveterans. At any rate, it has been found that when a system of federal scholarships is instituted by the federal government for administration by the colleges (which is in effect what happened with the GI Bill), a substantial group of students who could not otherwise have attended was matriculated. They proved to be just about as able as the students who could have paid their own way, and if anything they earned better grades relative to their ability than did the students with means to attend college--and all this with possible free riders included. Ability to pay for a college education is obviously not perfectly correlated with ability to achieve the academic goals of college. The results indicate that the veterans who needed financial assistance to attend college could and did make proper use of the opportunities afforded them by the GI Bill.

Why Did the Veterans Excel?

Identifying Relevant Characteristics

We have looked into the various ways in which veterans were found to differ from nonveterans, and we have found certain characteristics which are associated with the tendency to earn high grades relative to ability. It is now appropriate to consider whether or not any of these findings can be combined in such a way as to account for veteran-nonveteran differences in grades relative to ability.

One particular kind of item was thought to be especially relevant in accounting for veteran-nonveteran differences in grades relative to ability. In this kind of item, there is a clear relationship between item responses and Adjusted Average Grade; and at the same time there is a marked difference between veterans and nonveterans in their pattern of response. Suppose, for example, that on some particular item veterans are considerably more likely than nonveterans to choose the response associated with superior Adjusted Average Grade. We can then deduce that if veterans and nonveterans were alike in the quality identified by this item, the advantage of the veterans in Adjusted Average Grade would be lessened. Similarly, if veterans were much less likely to choose the response associated with inferior Adjusted Average Grade, the item would again tend to account for veteran superiority in the over-all results. It is of course possible that an item would function in the opposite way; that is, the results might indicate that veteran superiority would be increased if it were controlled. It need hardly be added that none of these findings can be interpreted mechanically; a positive result for an item merely indicates that it may throw light on the question of veteran-nonveteran differences in Adjusted Average Grade. In practice, a definite procedure was worked out for identifying the more promising items in accordance with these conceptions; the steps in this procedure are described in detail at the end of Chapter II. As part of the process of identifying items for further scrutiny, a simple statistical test was made in order to minimize the role of chance variations in selecting items. This test was based on the consistency with which the veterans showed a greater tendency than the nonveterans to select the responses associated with high Adjusted Average Grades. (In some items, the responses associated with low Adjusted Average Grades were made the basis of the comparison.)

Now we are ready to look at the results. For how many items were significant results found? One item was found to be significant at the 1% level, and three additional items were found to be significant at the 5% level. Since the proportion of significant items is only slightly greater than the number which, in view of the number of items tested, would be expected by chance, the significance of these four items must be considered as doubtful. Nevertheless it may be worth-while to examine the four items which were picked out by the sign test procedure.

Some Characteristics of Possible Significance

Amount of Time Devoted to Class Attendance. The item which was found to be significant at the 1% level is Item 22(a), which asks for number of hours per week spent in attending classes, laboratories, and other regularly scheduled course conferences. This item provides a measure of course load in which laboratory courses would be given greater weight than would usually be provided by "credit" hours. The finding is that students who spend relatively many hours attending class meetings tend to be above average in AAG, and that nonveterans possess this characteristic more frequently than veterans. Eleven subgroups were found in which both veterans and nonveterans were above average in mean AAG; ten of these subgroups contained relatively more nonveterans than veterans, and in the eleventh group the percentages were the same. This amount of consistency in direction of differences, or signs, would be expected to occur by chance less than once in a hundred times.

Our only highly significant item, then, leads us to the expectation that nonveterans would excel the veterans in grades relative to ability, which of course is contrary to our actual findings. The reason may be attributed to extraneous factors which influence the course load of veteran students. The general tendency for heavy course load to be associated with high AAG may be attributed to selective factors; only the more able and highly motivated students elect to take an unusually heavy course load. The course load of the veteran student tends to be lighter because, at most universities, he is excused from the usual military science or physical education requirements rather than because he is less able or less strongly motivated. Probably we should therefore discard our highly significant finding as being an artifact produced by these modified university regulations and thus irrelevant to the issue.

Keeping Up-to-date in Assignments. One of the items significant at the 5% level is Item 29, which asks, "In general, how well do you keep up-to-date in your study assignments?" Fourteen subgroups were found in which both veterans and nonveterans were *below* average in AAG. In all twelve colleges included, the subgroup containing students who said they were usually *behind* in their assignments was below average, and at two colleges students who just keep up-to-date were below average. Out of these 14 subgroups of below average students, the percentage of veterans was smaller than the percentage of nonveterans in twelve groups; this sign test result is significant at the 5% level. We find, then, that the characteristic associated with underachievement--not keeping ahead in completing assignments--is possessed more frequently by nonveterans than be veterans. This finding might, then, help to account for the observed fact that veterans do tend to earn higher grades relative to ability than nonveterans. It is unlikely, however, that this is anything more than a symptom of some more important underlying determiner.

Worry about Concentration. Thirteen subgroups were found in which both veterans and nonveterans were above average. The characteristic was "being bothered little, or not at all, about being unable to concentrate" (but at one college students who said they were bothered "some" were also above average). In eleven of these 13 subgroups the proportion of nonveterans was greater than the proportion of veterans. The finding is significant at the 5% level. Here we have an item which would lead to the expectation that nonveterans, rather than veterans, would excel in Adjusted Average Grade, since relatively more nonveterans than veterans are free from worry about concentration (the characteristic associated with high AAG). We must conclude that veterans were superior in AAG *in spite of* greater worry about concentration, and that the observed superiority of veterans would have been greater if they were not handicapped by this difficulty.

Worry about Getting to Know People Socially. Here we find eleven superior subgroups. The characteristic associated with superiority is "tendency to worry about social relationships." In ten of the eleven subgroups there are relatively more nonveterans than veterans, and the sign test shows significance at the 5% level. Again we find results which would lead to the expectation that nonveterans would excel in grades relative to ability, insofar as this evidence is concerned. However, it is doubtful that much stress should be placed on this finding since the relationship between worry about social relationship and overachievement is presumably rather indirect.

As was previously stated, the number of items found to be significant is only slightly greater than the number which would be expected by chance alone. Therefore the significance of the four items must be discounted. One of the items apparently involves an artifact which further detracts from its significance. The remaining three results, which at best are significant at only the 5% level, do not consistently favor either veterans or nonveterans. We are left with no reasonable hypothesis from our statistical approach to the problem.

On "Giving the Veterans a Break"

It has been suggested that the superiority of veteran students is simply due to a tendency for instructors to give the veterans a break in assigning grades. According to this hypothesis, the teacher was slightly more lenient with veterans. If the grade was on the borderline between a B and a B+, there was a greater tendency to call it B+ for a veteran than for a nonveteran, or a penalty for lateness in turning in a term paper was more likely to be remitted for a veteran than a nonveteran student. Such an hypothesis would lead one to expect a slight rather than a big difference, and would lead to the expectancy that the difference would be more noticeable for older veterans (who to the instructor are more obviously veterans) than to younger veterans. The facts are in reasonably good agreement with such expectations but may be due to other causes.

Unfortunately no satisfactory way to test the hypothesis has been found. The matter has been discussed with a number of college teachers, and their opinions vary. Although there are no safe grounds on which either to accept or reject the hypothesis, there are two reasons for believing that faculty bias played a very minor role in the results of this study: (1) The widespread use of objective examinations in underclass courses makes the hypothesis less tenable, since subjective opinion is involved only to a minor degree. (2) The large classes so often found in underclass teaching makes it unlikely that instructors would know very many of the students by name. Knowing the students by name would appear to be an essential condition for the hypothesis to hold. While no direct evidence is available, the authors are inclined to believe that relatively little importance can be attached to any tendency for teachers to give the veterans a break in assigning grades. The fact that there is no tendency for veterans in colleges with small classes (where students would be more likely to be known by name) to excel more than in colleges with large classes provides indirect evidence against the hypothesis.

The Vexing Question of Age Differences

The role of age differences in accounting for veteran-nonveteran differences in academic success is worthy of serious consideration. In dealing with this variable a difficult technical problem presents itself. If the comparison is not limited to a single class year (for example, freshman), the obtained relationship between age and average grade may merely reflect differences in the typical grades earned by freshmen, sophomores, etc. On the other hand, if the comparison is limited to a single class year, only the youngest members of the veterans' group will overlap in age with the oldest members of the nonveteran group. In a sense, then, age and veteran status become the same thing. The older students are the veterans, and the younger students are the nonveterans.

Several studies of age, in which the matter of class rank was not controlled, have been reported. Shaffer (80) by matching on age and allowing everything else except sex to vary, was able to show that male nonveterans excelled male veterans at every age level. This was true although veterans excelled nonveterans on the whole by a margin of .01 grade points. Owens and Owens (67) found a correlation of .37 between age and grade point average for 194 male veterans at Winona State Teachers College. They also found that age contributed to the prediction of success when combined with American Council Psychological Examination Scores.

Pultz (71) reports figures which show a clear-cut upward trend in the grades earned by veterans in the Ohio State University College of Education as successively older age groups were considered. Thus, 97 veterans in the 17-19 year age group earned a median average grade of 2.16 as compared with a median grade of 2.87 for 22 veterans who were 32 years of age or older.

Although the facts reported by these studies must, of course, be accepted, the possibility that the relationships found are strongly influenced by the failure to control the factor of class year makes it imperative to withhold judgment regarding any intrinsic relationship between age and academic success.

Fortunately, Garmezy and Crose (35) and Pierson (69) have reported evidence on the relationship between age and academic success for veterans during a single class year. The correlation found by Garmezy and Crose was .00. This was based on the results for 564 veterans at the State University of Iowa during the academic year 1946-1947. Upon more detailed examination of their data, they found that the tendency, if any, was for youth rather than age to be associated with higher grades. In Pierson's study of students at Michigan State College, holding class year constant by considering only students completing the sophomore year during the spring or summer quarters of 1947, veterans in the oldest and youngest age groups earned the highest average grades. Those veterans entering at ages up to 18 had an average grade of 1.47, those entering at 25 or older averaged 1.37, and two intermediate groups averaged 1.30. The groups varied in size from 53 to 140 students. These results, taken in conjunction with the findings of the present study, indicate that the correlation of age with grades within the veterans group is not sufficiently high to warrant the conclusion that it in and of itself is a major determiner of veteran-nonveteran differences in academic performance. In this connection it may be well to note the observation made in 1944 by Williamson (104), that increased age and work experience do not necessarily bring maturity and seriousness of outlook. Although he was discussing the effects of war-work on students rather than the effects of military service, it would appear that his point is equally pertinent here.

Thompson and Pressey (91) succeeded in carrying out a controlled experiment in which veterans were compared with nonveterans who had entered college at the same older age during the period 1941-1946. Their study was based on 187 pairs of students, matched on the basis of percentile on general ability test, college, program within college, and cumulative average during first three quarters in college. They found that the median average grade of the veterans was 2.63 as compared with 2.55 for the nonveterans, during their first three quarters in the university. They suggest that the superiority of the veteran may have resulted from broader experience during the time he was out of school or from having more time to study as a result of federal support. It should be added that the difference in average grade of only .08 in favor of the veterans may underestimate the influence of veteran status, since it is more exceptional for a nonveteran to return at an older age than is true for a veteran; thus, the older nonveterans may be a very highly motivated group of students.

In the present study, no controlled comparison was possible because there was virtually no overlap in age between the veteran and nonveteran groups. However, it was judged important to study the relationship between age and Adjusted Average Grade for veterans and nonveterans separately. And, as has been noted in the section on overachievers, it was found that the youngest nonveterans and the oldest veterans made the best records relative to ability. The finding for nonveterans is of course what we would expect from earlier studies of this question. The finding for veterans, though in line with the many observations that veterans excelled by reason of greater maturity, is worthy of further examination.

Although a rigorous analysis of the contribution of age (and the determiners associated with it) did not seem possible in terms of the conceptions of the present study, one further step in the analysis was undertaken. This step was aimed at determining whether or not the removal of the oldest group of veterans would introduce a substantial change in veteran-nonveteran differences. Accordingly, veterans born in 1924 or earlier were removed from each of the twelve veteran groups. The youngest of the veterans thus excluded were within a few months of their 22nd birthday when they entered college. Put in another way, this older group of students were entering college at or beyond the customary age for completing college. Although this procedure did not by any means eliminate age differences between veterans and nonveterans, it undoubtedly reduced considerably the effect of age difference on the results.

The outcome of this step was rather interesting. In the twelve basic college groups, the results had favored the veterans in ten groups, favored the nonveterans in one group, and one group was tied. After the older veterans had been removed, there were three groups (Douglas, Littletown State, and Midwest City) where the nonveterans slightly excelled the veterans and one group (Western State) showed a tie. In only three groups (Central State, Midwest Tech, and Middle State) did the veterans have an advantage amounting to more than five points in Adjusted Average Grade, and the median difference was reduced from six to only three points. It would appear, then, that when the older veterans were removed, the difference between veterans and nonveterans, which was not very great to begin with, is reduced to a point where it can no longer be considered significant.

Three points must be stressed, however, in relation to this statement. First, the above conclusion is concerned with the extent to which being a veteran, in and of itself, contributed to success in college; there is no intention to minimize the remarkable achievement of the veteran in returning to college after a lapse of several years in his academic career and outdoing his nonveteran fellow students. Second, even when the advantage of the veteran is deliberately reduced by eliminating a subgroup of relatively outstanding performers, the advantage still rests with the veteran group. Third, the removal of the oldest veterans after it was found that they were the highest of the three age groups among the veterans may be questioned on the grounds that the hypothesis was constructed after the results were in; in other words, that this procedure may have tended to capitalize on chance fluctuations in the results. In defense of this procedure, however, it may be observed that there was ample justification on the basis of previous reports for thinking that the oldest veterans were contributing disproportionately to the reported superiority of veterans. Moreover, the relatively large number of separate groups involved in the study tends to reduce the danger involved in applying a hypothesis to the same data which gave rise to it.

It appears that age may at least be regarded as providing some clues as to why veterans did better. To take advantage of this finding, it was thought desirable to find out in what respects the older group of veterans did better than the younger group.

Some Characteristics of Older Veterans

Accordingly a supplementary study was made for veterans at one large college in order to compare the older veterans with the younger veterans with respect to some 40 selected questionnaire items. (Central State was chosen because it showed a relatively large difference between veterans and nonveterans and included a large number of older veterans.) The main purpose was to find out to what extent this group of veterans, who were most different from nonveterans in age, possessed characteristics which differentiated them from the younger veterans. Responses significant at the 1% level are shown in Figures 4 and 5. Veterans at Central State who were born in 1924 or earlier were compared with those born later than 1924. There were 147 veterans in the older group and 317 in the younger group. It was found that veterans at Central State who were born in 1924 or earlier did differ from veterans born later than 1924 in several important respects. Differences which are significant at at least the 5% level of confidence are summarized below.

Background Characteristics. So far as aspects of military service are concerned, more of the older veterans were commissioned officers, their military service was longer (the medians were about 37 months and 24 months for the older and younger groups respectively), and more had overseas service, as compared with younger veterans. Considerably more of the older veterans had served overseas for 18 months or more. These differences undoubtedly result from the fact that the older veterans had gotten into the war in its earlier stages.

The older veterans had graduated from high school at an earlier date, which of course is to be expected. The typical older veteran graduated in 1941, and the typical younger veteran in 1944. The other findings sug-

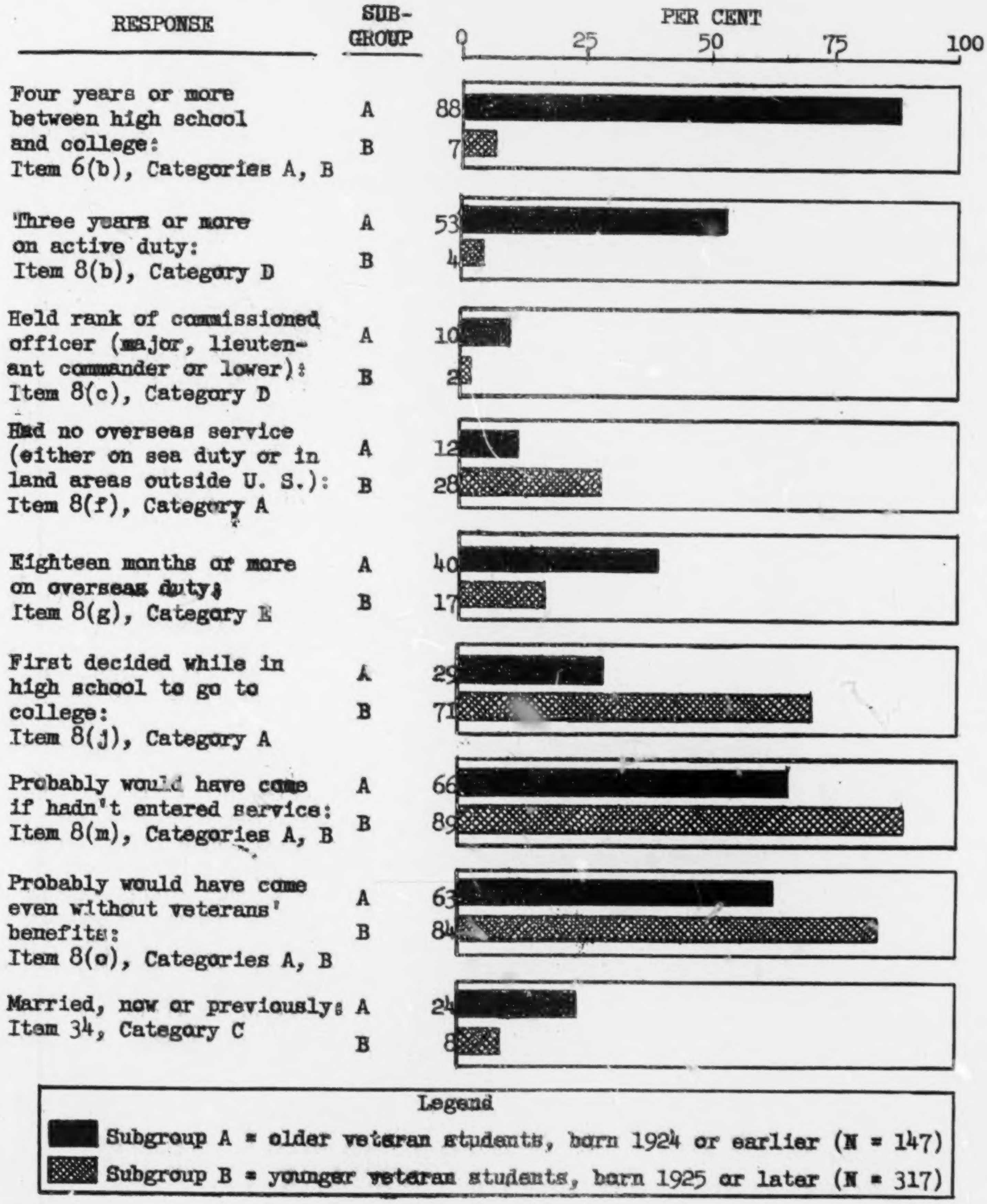

FIGURE 4. PER CENT MAKING SELECTED RESPONSES TO QUESTIONNAIRE ITEMS AMONG OLDER MALE VETERANS AND YOUNGER MALE VETERANS. (BASED ON CENTRAL STATE FRESHMEN WHO ENTERED IN THE FALL OF 1946.)

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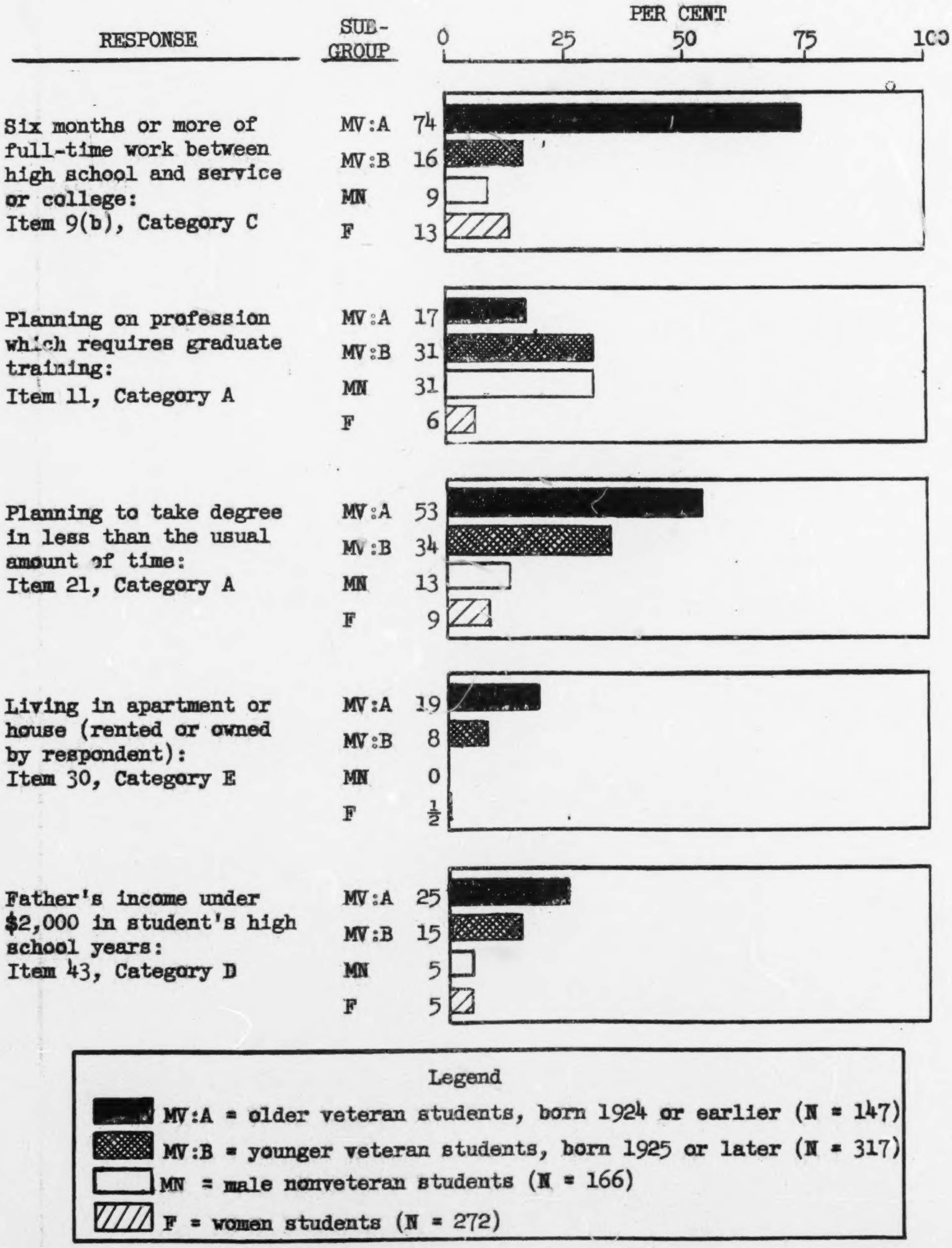

FIGURE 5. PER CENT MAKING SELECTED RESPONSES TO QUESTIONNAIRE ITEMS AMONG OLDER MALE VETERANS, YOUNGER MALE VETERANS, MALE NONVETERANS, AND FEMALE NONVETERANS. (BASED ON CENTRAL STATE FRESHMEN WHO ENTERED IN THE FALL OF 1946.)

gest that the older veterans tended to come to college in spite of more adverse economic factors. Only about 30 per cent of the older group had decided to go to college before graduation from high school, while 70 per cent of the younger veterans had made the decision at that time. Almost a fourth of the older men were married, while less than 10 per cent of the younger veterans had a wife at the time the questionnaire was filled out. Related to this result on marital status is the finding that more of the younger veterans lived in fraternity houses, and more of the older ones were renting or owned their house or apartment. Almost three fourths of the older group had been employed on a full-time basis for six months or longer, while only about 15 per cent of the younger group had worked full time for six months. About a fourth of the older veterans, as compared with about 15 per cent of the younger men, reported that while they were in secondary school their father's annual income was less than $2,000; this finding may be affected, however, by a general increase in income during the period under consideration.

Factors Related to Motivation. The older veterans more often gave as their chief reason for attending college "to increase general knowledge," a result which is in line with the observation of President Oliver C. Carmichael (17), then Chancellor of Vanderbilt University, in 1945, based on the veterans who came back first, that the veterans tended to be interested in fundamental courses. The older veterans also were less likely than the younger veterans to select the reason, "A college degree is necessary in order to enter the profession I have chosen." In answer to a question about vocational objectives, the older veterans less often named a profession requiring graduate training and more often gave an occupation which probably requires a college degree but not necessarily any graduate work. Presumably the older men did not wish to embark on a training program which would further delay their economic independence. The older veterans are less inclined to consider college grades "very important," and they more often planned to accelerate their college program.

Worries. The older veterans apparently did not differ greatly from the younger veterans in amount of worry. However, three sources of worry were found which concerned the older men more than the younger. The older group was bothered more about nervousness, getting to know people socially, and housing. So far as housing is concerned, the problem may have been related to the fact that a larger proportion of the older veterans were married. Why more of the older veterans should be worried about nervousness is not clear, unless it has something to do with their greater feeling of urgency. Greater concern about social relationships might possibly result from the fact that the older men tended to seek friends off the campus. But they were not worried more about making ends meet financially.

Expenditure of Time. The older veterans were found to spend a significantly greater amount of time than nonveterans in three kinds of activity. One was studying; the median number of study hours reported by the older men was about 19 1/2 as compared with 17 for the younger veterans. The older men also spent more hours per week reading and studying materials related to their courses but not required. Finally, the older veterans were more likely to be engaged in paid employment. These results suggest that the older veterans were more interested or more strongly motivated to do academic work, and fit the hypothesis that their financial need was greater.

The GI Bill. The results clearly indicate that the educational aspect of the GI Bill was a more important factor in getting the older veterans into college than was true for the younger veterans. Only about 65 per cent of the former group would definitely or probably have come to college even without the benefits provided, while about 85 per cent of the younger veterans would have come anyway. Similar results were found for the question, "...do you think you actually would have gone to college if you hadn't entered military service?"--almost 90 per cent of the younger veterans would have come anyway, as compared with about two thirds of the older veterans. The educational benefits of the GI Bill seem to be the deciding factor, and since the consideration is a financial one, it again suggests that the economic factors were more adverse for the older veterans. This finding agrees reasonably well with that of Strom (86), who found that only 50 per cent of veterans 24 or more years old, with no preservice college training, would have returned without the GI Bill, and an additional 6 per cent were uncertain.

Attitudes Toward the University. No significant difference was found in ratings of faculty members as teachers or judgments about the degree of satisfaction with the kind of education the men were getting.

Self-Selection and Veteran Success

The results of the questionnaire in relation to veteran-nonveteran differences in academic success may be used more properly to formulate a hypothesis than to draw conclusions. The hypothesis to be proposed is that veteran-nonveteran differences reflect a process of self-selection. Let us consider how such a process might work.

First, we may safely assume that determiners other than scholastic aptitude and high school record exert a considerable influence on whether or not a student will or will not attend college. Evidence that many college-age students of very high ability do not attend college has been provided by many writers; much of this evidence has been summarized recently in *Science, the Endless Frontier* (14). Studies by Toops (94), Bittner (7), Goetsch (38), Warner, Havighurst and Loeb (101), and earlier studies growing out of Counts' pioneering investigation of school-leaving have indicated what some of these influences are. From these studies, it may be judged that the following items included in the present study would be relevant to likelihood of college attendance: father's income, father's education, and age. With respect to age, Toops reported that studies in the 1930's in two large Ohio colleges indicated that very few students entered college more than two years after they completed high school. It is also plausible that the student's marital status and his report regarding the likelihood that he would have attended college without the GI Bill fall in this same general field. We might, then, imagine a measure which would be a composite of all of these non-aptitude determiners of college-going. For students of a given aptitude level, we might construct a curve something like that shown in the upper part of Figure 6 to represent the relationship between this over-all composite and the probability of college attendance.

Let us consider, then, the students who actually attend college. It would seem that a student drawn from the relatively unfavorable end of the curve would not elect to go to college unless he had a special incentive to do so, had an unusually keen interest in and liking for academic pursuits, or for some similar reason was strongly motivated to endure temporary financial insecurity in order to achieve a college education. A student from the "favorable" end of the distribution would not need special personal incentives to attend college. Considering only the students who actually do go to college, it would therefore seem that students from the more favorable end of the scale will display less drive than those from the less favorable end. The relationship which exists might be something like that shown in the lower portion of Figure 6. It may be added that the actual form of this curve is not essential to the argument as long as a tendency for greater drive to be associated with greater adversity of non-aptitude determiners is present.

This hypothesis appears to fit especially well the findings of the present study with respect to the superior performance of older veterans and married veterans. The findings with respect to father's income, both for veterans and nonveterans (although the interpretation for veterans is complicated by shifts in income levels during the period covered by the question) tend also to fit the hypothesis, at least as far as low incomes are concerned. The findings with respect to the importance attached to the GI Bill by various veterans in regard to their college-going are probably less dramatic than this hypothesis would lead one to suspect, although the trend is in the expected direction. The finding that veterans who would probably not have attended college if they hadn't entered military service were overachievers fits this hypothesis. (It is conceivable, of course, that the economic benefits of the GI Bill tended to obscure rather than enhance the relationship between economic self-selection and drive.) The absence of a relationship between father's education and Adjusted Average Grade is contrary to the hypothesis being considered; this finding suggests that father's education does not belong in the composite of non-ability determiners of college-going insofar as the present hypothesis is concerned.

Why did the veterans excel? According to this hypothesis, the superiority of the veteran student was not due primarily to any psychological characteristics associated with greater age or with experiences connected with military service. His superiority, we suggest, was due to a process of self-selection growing out of a complex of circumstances which included the educational benefits of the GI Bill and the delaying of college matriculation on the part of veterans. Those veterans who decided to go to college included a larger proportion of strongly motivated and academically-minded men than would otherwise have gone to college; those with less drive and

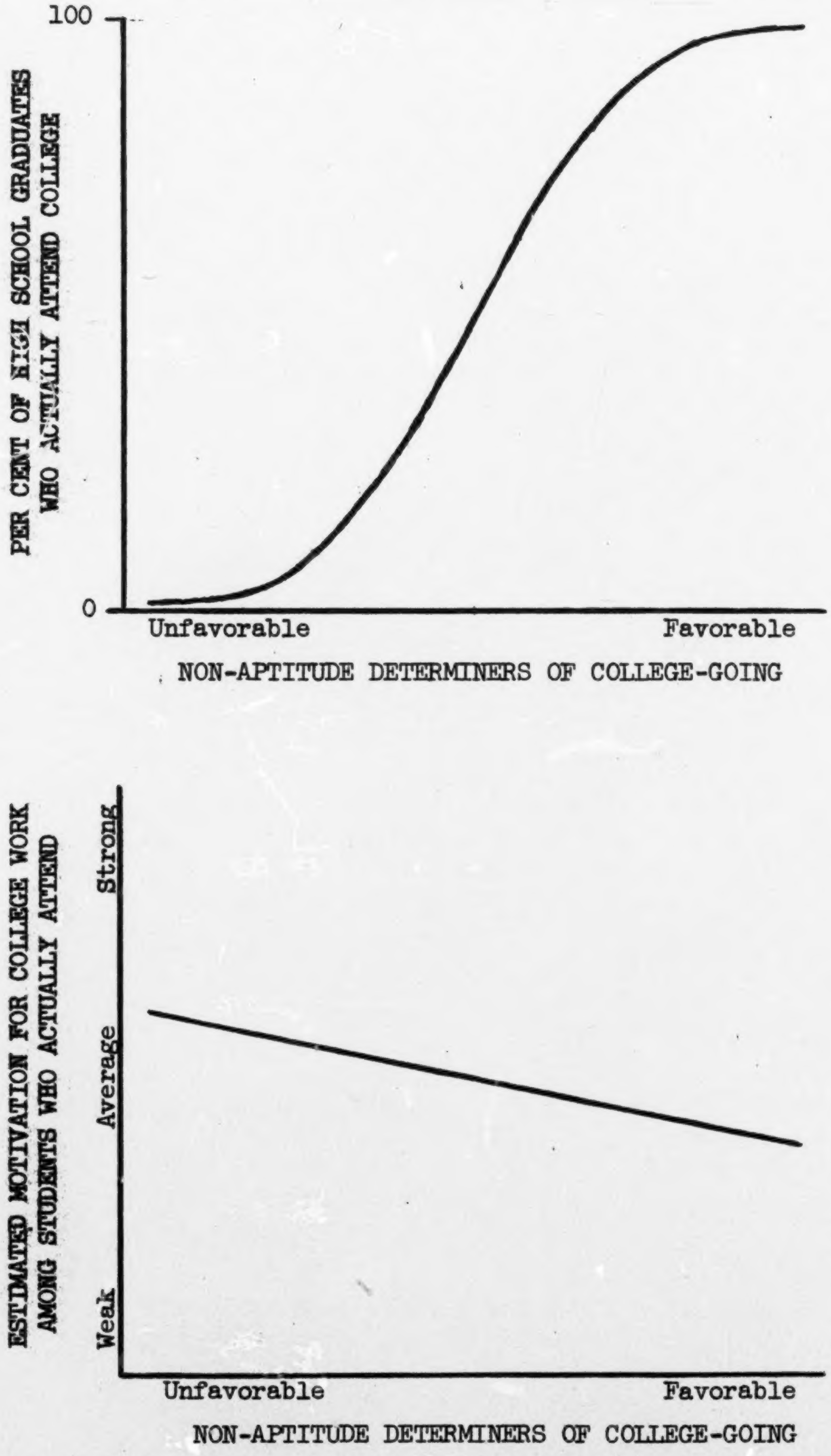

FIGURE 6. HYPOTHETICAL RELATIONSHIPS BETWEEN NON-APTITUDE DETERMINERS OF COLLEGE-GOING AND (1) PER CENT OF HIGH SCHOOL GRADUATES WHO ENTERED COLLEGE AND (2) ESTIMATED MOTIVATION FOR COLLEGE WORK AMONG STUDENTS WHO ACTUALLY ATTEND.

interest tended not to go to college because of economic and social conditions associated with greater age which functioned as deterrents to college attendance.

In conclusion, we should like to repeat that this hypothesis is offered, not as an explanation of veteran-nonveteran differences, but as a means of bringing together a number of findings into a more coherent picture. The reader may speculate on the scope of a study which would be needed to make a rigorous test of this hypothesis as an explanation of why veterans excelled. More fruitfully, perhaps, he might consider the implications of this hypothesis for future research on the long-range questions: who goes to college and why? and who succeeds in college and why?

Some Comparisons of Men and Women Students

Strictly speaking, women students could have been excluded from the present study, since insufficient female veterans were enrolled in any of the college groups to justify a separate analysis. However, it was thought desirable to make some study of sex differences in order to obtain a more complete picture of the groups in which the veterans were enrolled, particularly since findings in this area might have considerable educational significance. Accordingly, attention was given to sex differences in grades relative to ability in two college groups and to the questionnaire responses of women in nine college groups. In this summary the discussion will be limited to differences between women and nonveteran men. (The median values for veteran men on selected responses are shown in Figure 7 for comparison.)

Sex Differences in Grades Relative to Ability

At a university known in this study as Douglas University (a private coeducational university located in a southern city), data were obtained for 119 male nonveterans and 93 female nonveterans. When ability as measured by the ACPE and high school average grade was controlled, no significant difference in freshman average grade was found. The women's mean Adjusted Average Grade was higher by only .06 of a letter grade unit. At the other university, Western State (a coeducational state university located in a western city), data were available for 222 male nonveterans and 482 women students. Ability was again measured by ACPE scores and high school average grade. In this case no difference in AAG was found within two decimal places of a letter grade unit. It must be concluded that so far as these two comparisons are concerned there is no significant tendency for either men or women students to excel in college achievement when the factor of ability is kept constant.

In both institutions it was found that the male students were slightly superior so far as ACPE mean scores are concerned, while the women were superior with respect to high school average grades.

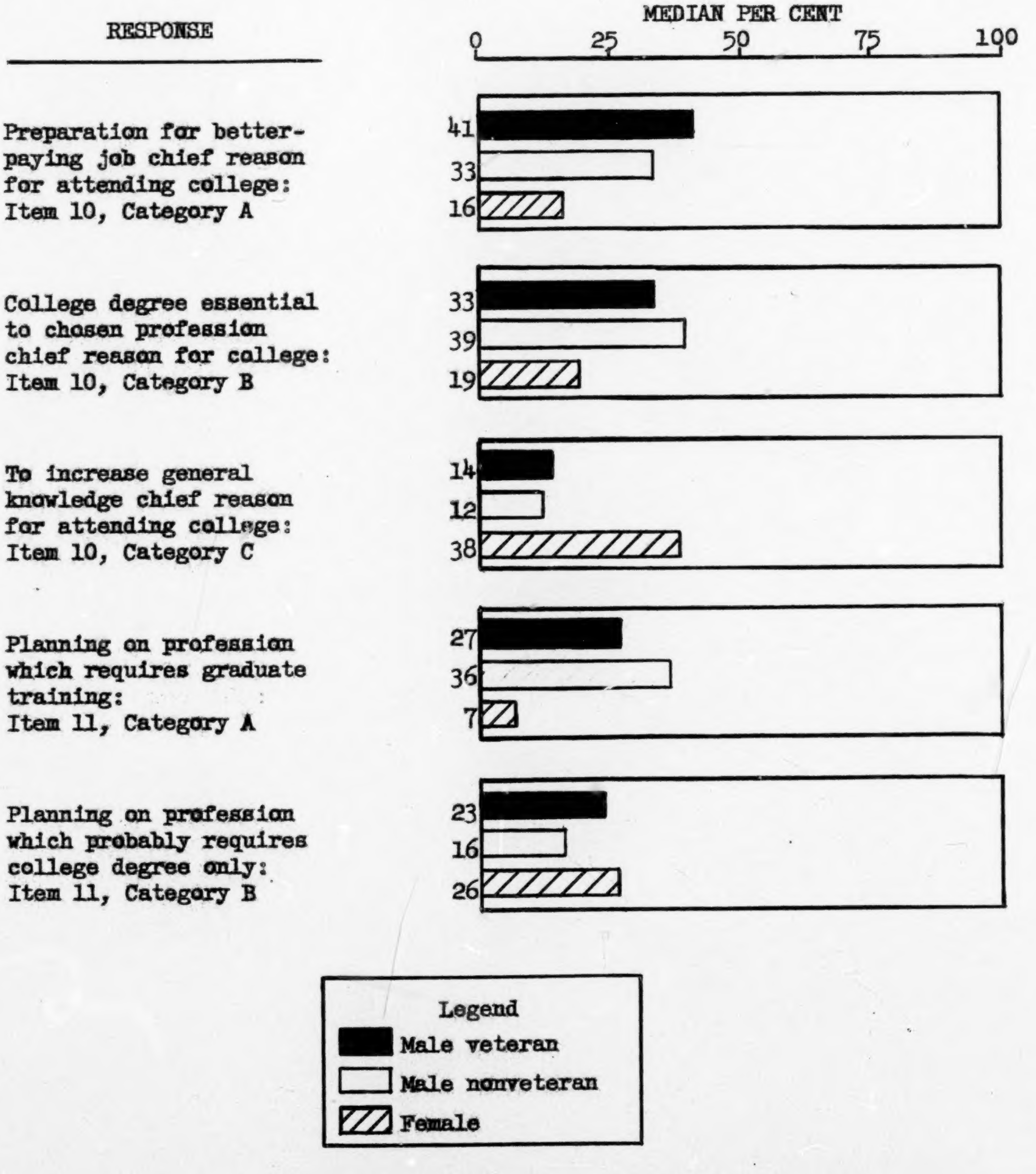

FIGURE 7 (PART 1). MEDIAN PER CENT MAKING SELECTED RESPONSES TO QUESTIONNAIRE ITEMS AMONG VETERAN MALE, NONVETERAN MALE, AND FEMALE STUDENTS. (MEDIAN VALUES, BASED ON THE NINE GROUPS FOR WHICH THE RESPONSES OF WOMEN WERE TABULATED.)

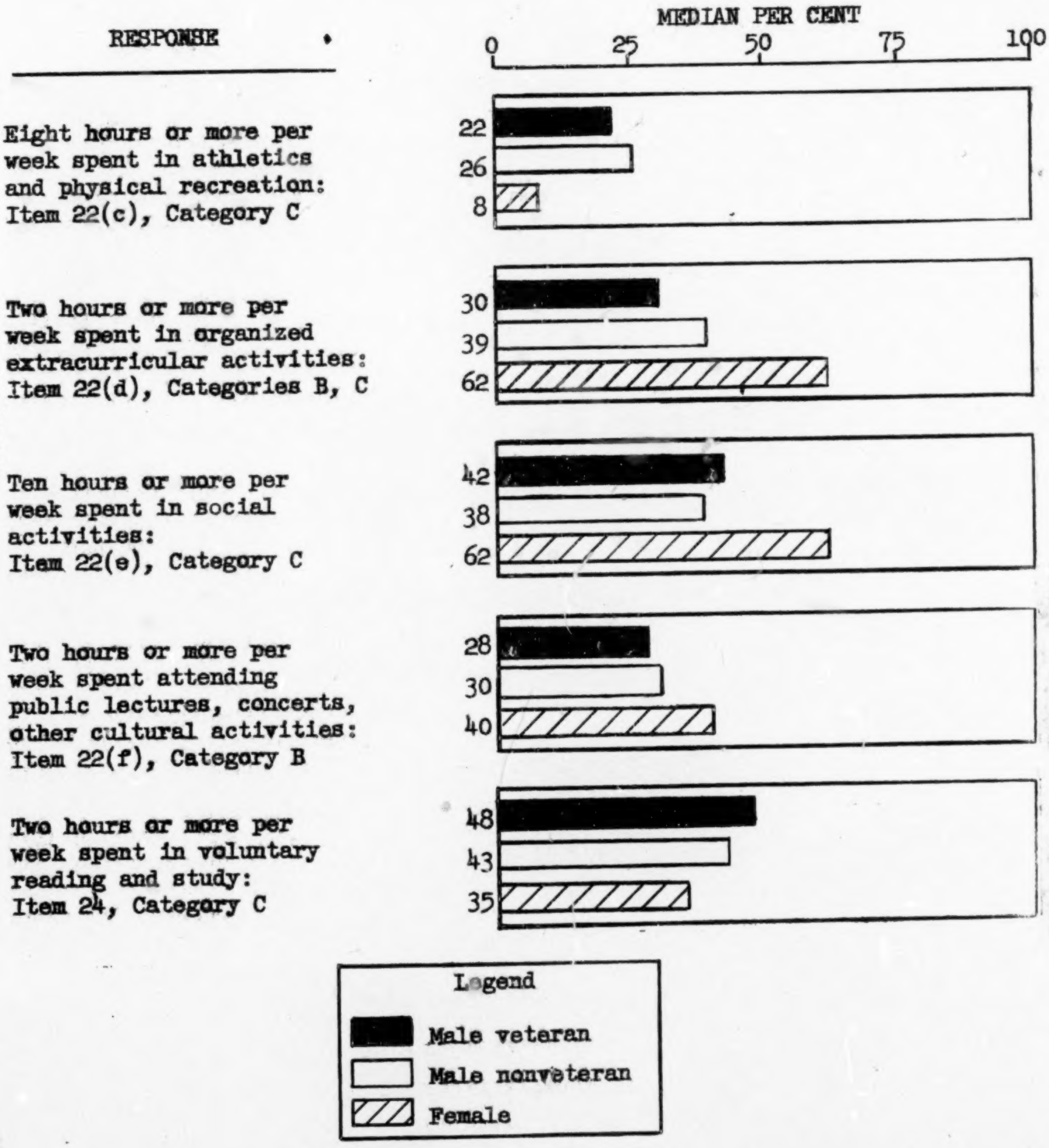

FIGURE 7 (PART 2). MEDIAN PER CENT MAKING SELECTED RESPONSES TO QUESTIONNAIRE ITEMS AMONG VETERAN MALE, NONVETERAN MALE, AND FEMALE STUDENTS. (MEDIAN VALUES, BASED ON THE NINE GROUPS FOR WHICH THE RESPONSES OF WOMEN WERE TABULATED.)

Sex Differences in Questionnaire Responses

As in the discussion of veteran-nonveteran differences in response to the various questionnaire items, two lines of evidence will be considered. The size of the difference between women and nonveteran men offers one kind of evidence. Another kind is provided by the consistency with which the difference between women and men goes in the same direction in each of the nine college groups. The latter kind of evidence is especially pertinent in evaluating the generality of the trends. Figure 7 shows the median proportion of women, of nonveteran men, and of veteran men for responses which show the same direction of difference between women and nonveteran men in all nine of the groups. In addition, three responses shown in Figure 8 (worry about finances, about illness or death in family, and about nervousness) are consistent in all nine groups. Such consistency would be expected to arise by chance less than once in 100 times.

Background Characteristics. Women and men on the average showed rather similar background characteristics. There was a slight tendency for a greater proportion of women to be in the "born before 1928" category in age, perhaps because the draft was taking some of the older nonveteran men. Women were somewhat less likely to have held a full-time job. Differences in family income tended to be small on the average, but women tended to report higher incomes. However, women were somewhat more likely than men to omit this question. Relatively more women reported that their fathers had completed college. Women were more likely than men to come from cities of 100,000 or more population, and were more likely to be living at home or in college dormitories than men. On the whole, the findings show considerable similarity between men and women students with respect to background characteristics.

Motivational Factors. As shown in Figure 7, relatively few women had plans for a career involving graduate study; they were, however, somewhat more likely than the men to be planning for work which required a college degree but no graduate work. About half of the women named occupations which did not require college graduation or named broad vocational fields. In all but one of the nine groups, women were more likely than men to be undecided about their vocational plans; Katz and Allport's (56) study noted a similar tendency. Their chief reason for attending college tended to place less stress on career plans and more stress on desire to increase general knowledge and on social reasons than was true for the men. Women considered college graduation less important for their post-college plans, felt that college grades were somewhat less important in relation to their later opportunities, and were somewhat less likely to want to accelerate their college training. With regard to keeping up-to-date in their assignments, the women less often reported that they kept ahead or fell behind; they more often reported that they completed assignments just on time. The general tenor of these findings suggest that the motivations of women toward their college work placed less weight on future occupational goals and perhaps more stress upon their immediate college program than was true for the men.

Worries. Figure 8 summarizes the findings for male nonveterans and women students. The bars which represent the median percentages of male nonveterans who were bothered "some" or "very much" in Figure 3 are not identical with those in Figure 8 because three of the groups in the earlier figure included institutions in which there were no women students. The order of importance for male nonveterans of the various sources of worry is about the same, however; first in importance are those related to academic problems (concentration, getting accustomed to college study, and deciding what course of study to follow); then come financial worries, worry about personality problems (inferiority and nervousness), worry about social relationships, health problems, and housing.

The tendencies for women to worry more about illness or death of loved ones and about nervousness, and to worry less about finances are consistent in the nine college groups. Women also expressed somewhat more concern about choosing their course of study and about strained personal relations. On the other hand, they worried less than the men about getting to know people socially and about housing problems. These tendencies are in the direction which would be expected in a culture which favored greater emotional expressiveness in women than in men and which tended to shelter women from practical problems. The small size of the differences, however, indicates that among the college women in this study, the effects of such tendencies are relatively small.

Figure 8 shows an over-all tendency for women to report worries more frequently than men. The greater tendency for women to worry, or at least to report that they worry, was also found in the responses to a general question, "Do you sometimes feel worried and anxious or upset?" Women reported somewhat more often than the male students that they worried frequently. In spite of this, women tended to claim slightly more often than men, that their worries had not interfered with their college work.

The somewhat greater tendency for women to report worry should not, of course, be taken at face value as indicating that they are more susceptible to worry and anxiety, particularly since the difference is slight. Indeed, the difference is less than would probably be expected on the basis of popular stereotypes.

Expenditure of Time. The comparison of male nonveterans and women students with respect to amount of time spent in various types of activity showed no significant difference in time spent in studying and in bull sessions. Women spent considerably more time than men in extracurricular activities other than athletics, attending lectures and concerts, and in social activities--dates, parties, movies, etc.--and less time in athletics, physical recreations and in voluntary course reading, as is apparent from Figure 7 (Part 2). In general they spent less time than men in attending classes (presumably because they tend to take fewer laboratory courses), and were less likely to have a part-time job.

Attitudes Toward the College Environment. With regard to a number of questionnaire items which relate to attitudes toward the college environment, differences tended to be slight. Women students were slightly more often

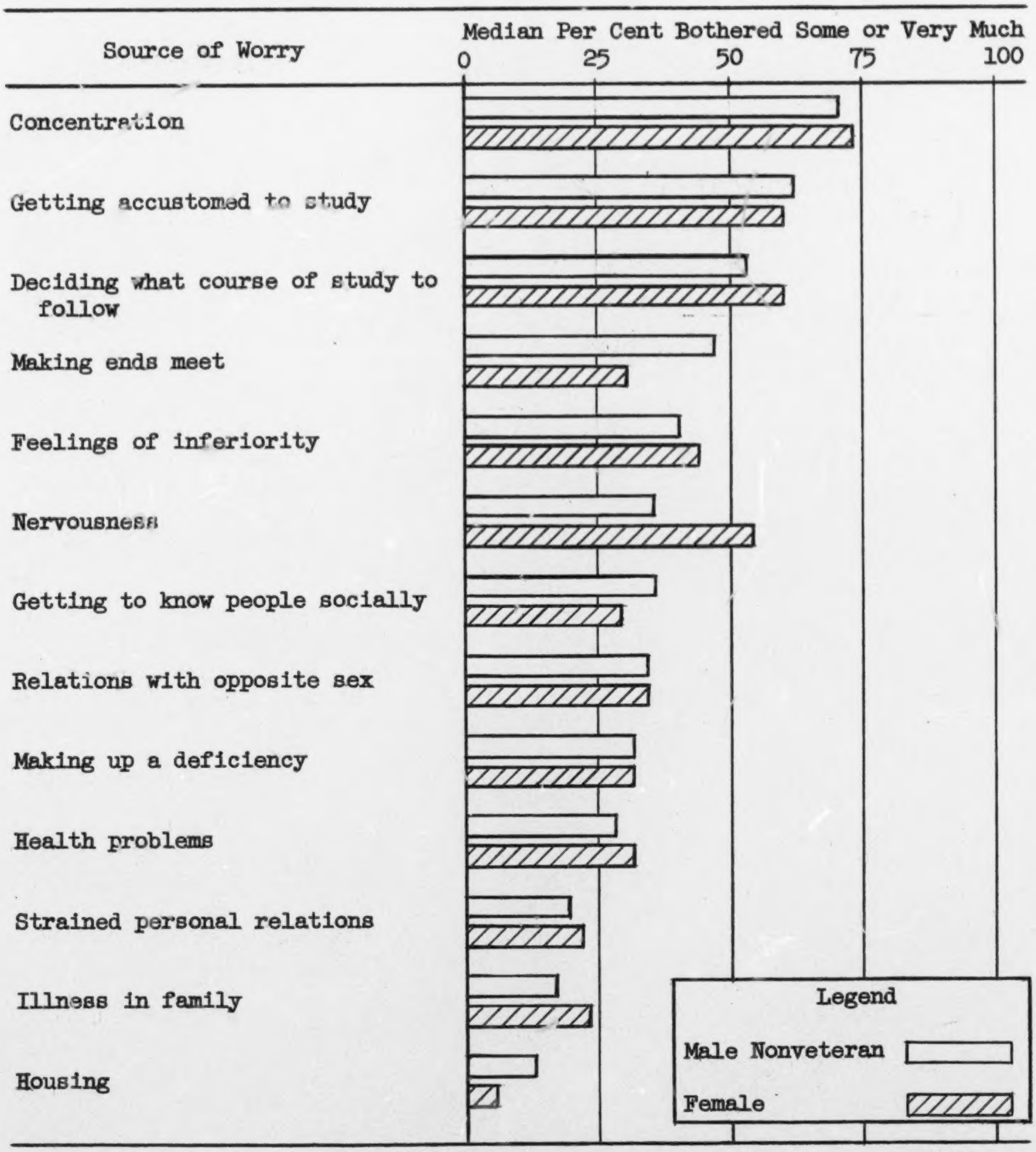

FIGURE 8. MEDIAN PER CENT OF NONVETERAN MALE AND FEMALE STUDENTS BOTHERED BY VARIOUS PROBLEMS. (MEDIAN VALUES, BASED ON THE NINE GROUPS FOR WHICH THE RESPONSES OF WOMEN WERE TABULATED.)

critical about having a satisfactory place to study; and they were somewhat less likely to criticize the quality of instruction provided. So far as interest in courses, enjoyment of their studies, satisfaction with the kind of education they were getting, preference for the school or division in which they were enrolled, and ratings of their instructors are concerned, essentially no difference was found between the men and women. Women were no more inclined than the men to make comments, in a free-answer situation, regarding changes they would like to see made in the program or organization of education at their college.

Summary. In their responses to the questionnaire, women differed most strikingly from the nonveteran men in their vocational plans and in their reasons for attending college. Less than ten per cent of the women, as compared with about 35 per cent of the men, were planning to enter a profession requiring graduate study. On the other hand, about one fourth of the women were planning a career which required college graduation but not advanced training, as compared with about 15 per cent of the nonveteran men. Acquiring general knowledge was much more likely to be the chief reason for attending college for women than was true for the men. Understandably, preparation for professional work or for a better-paying job was relatively less important for women than men. These differences undoubtedly reflect, at least in part, the prevailing expectations of the parents of these students and the prevailing conditions with regard to "marriage vs. a career" in our culture.

Women differed substantially from men in the way they spent their time. Organized extra-curricular activities other than athletics, social activities and recreation, and attendance at public lectures and concerts were relatively more popular with women than with men; while athletics and voluntary reading were more popular with men. Except for the last difference mentioned, these differences probably would agree reasonably well with the stereotype of men students and coeds held by college students.

The tendency for women to report more worry about nervousness may reflect greater social acceptability of this type of worry in a woman than in a man; the tendencies for women to report more worry about illness and death in their family and less about making ends meet financially may reflect somewhat closer emotional and economic ties to the family for the women.

It must be added that any general summary may overlook important differences in the questionnaire responses of men and women in a particular college or a particular curriculum; the fact that even the strongest group tendencies showed many individual exceptions should also be recognized in interpreting these results.

Effectiveness of Conventional Predictors of Academic Success

In the process of evaluating the differences between veterans and nonveterans with respect to grades relative to ability, a considerable amount of information was obtained relating to the value of tests and high school record for predicting college grades. The number of validity studies conducted as an incidental part of the study was unusually large, and it seems appropriate to summarize here the results of this aspect of the study.[4]

Test Scores and High School Record as Predictors

The American Council Psychological Examination (ACPE) was the test of ability most commonly employed. It was used as a predictor for twelve separate college subgroups; since veterans and nonveterans were treated separately and two of these subgroups included women students, 26 separate correlations between total score on the ACPE and freshman average grade were obtained. There was considerable variation among these coefficients, presumably because of sampling error due to the small size of certain of the subgroups; the coefficients ranged from .28 to .61. The median of the 24 male subgroups was .47. It may be observed parenthetically that Thurstone and Thurstone (92), in 1932, remarked that the correlations between American Council Psychological Examination scores and grades averaged around .50, which is in good agreement with the present findings.

The median validity coefficient for the twelve male veteran subgroups was somewhat higher than for the male nonveteran subgroups; the two medians were .48 and .43 for veterans and nonveterans respectively. While the difference is not very great, the finding is consistent with the hypothesis that veterans tend more than nonveterans to achieve the grades they are capable of earning. In other words, veterans may be more uniformly motivated to work at maximum capacity; differences among veterans in grades earned are to a lesser extent a function of such nonintellectual variables as interest and motivation than is the case for nonveterans.

Another predictor which was available in a large number of colleges was some sort of measure based on high school record--average grade, rank in class, or rank adjusted in some manner on the basis of differences between various types of secondary schools. Such a measure was employed in eleven college groups, and 22 validity coefficients for male veterans and nonveterans were therefore computed. The validity coefficients varied from .33 to .68, and the median value was .57. The high school record thus is found to furnish a somewhat more accurate prediction, for these groups, than the ACPE. In six college groups both ACPE and high school record were employed as predictors, thus affording twelve direct comparisons of the two predictors among male groups. In eleven of the twelve comparisons the validity coefficient was higher for high school standing. Such consistency would be expected to occur by chance fewer than once in a hundred times.

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[4] No attempt is made to review the extensive literature in this field. Recent reviews in this general area have been published by Cain, Michaelis, and Eurich (16), Garrett (36), and Travers (95).

Comparing veterans and nonveterans with respect to the predictive value of high school record, we find that the median of the validity coefficients is .53 for veterans and .61 for nonveterans. It will be recalled that validities were higher for veterans when the ACPE was considered. The reverse finding for high school record seems reasonable, in the light of the greater time elapsing between high school graduation and college entrance for veteran students. The findings are also consistent with the previously mentioned hypothesis that veterans tend somewhat more than nonveterans to work at maximum capacity because of more uniform motivation. High school grades presumably reflect motivational and other nonintellectual factors as well as ability to do academic work; to the extent that these have changed more for some veterans than for others, the correlation would be lowered. To the extent that high school grades reflect knowledge and skills directly useful in college work, their predictive effectiveness from this viewpoint would be lowered also, since it is plausible that the educational effects of service were not uniform for all veterans.

Although it is of some theoretical interest that better prediction of freshman grades was obtained from the high school record than from the ACPE, the more critical question is how well the two function together as a team. These two predictors were used as the predictive team in six college groups. Considering the twelve multiple correlations obtained from the veteran and nonveteran subgroups, a range of .53 to .76 was obtained, and the median value was .64. The median multiple correlation coefficients for veterans and nonveterans respectively were .60 and .68. The use of the two predictors in combination thus furnishes a better basis for predicting freshman grades than either ACPE scores or high school record used alone. The magnitude of the correlations is great enough to indicate that the combined measures provide a really useful prediction of how well a particular student is likely to succeed in his freshman year of college.

Prediction of Sophomore or Junior Grades

In the studies of interrupted veterans the measure of ability used was grades earned during the freshman year. It was decided to employ freshman grades rather than tests and high school record on the assumption that freshman grades would provide a better prediction; this assumption was tested at one institution. At Adams, a prediction based on a combination of College Board tests and adjusted high school rank correlated (for veterans) .51 with fourth-semester average grade, while the correlation of first-semester grade with the same criterion was .59. For nonveterans, the difference was smaller; the analogous correlations were .64 and .66.

In three interrupted groups, first-term grades were used as the predictive measure and fourth-term grades were used as the measure of success. In two other groups, average grades for the first two quarters were the predictor and eighth-quarter grades were the criterion measure. The median prediction coefficient in the five nonveteran groups was .62; in the five veteran groups it was .57. The difference in coefficients is plausible in view of the interruption in the educational careers of the veterans.

The data of this study made it possible to compare the effectiveness with which later college grades were predicted from earlier college grades with the effectiveness with which first-year college grades were predicted by a combination of high school record and test scores. Comparisons were based on nonveteran students in the same college and division. In the three groups where fourth-semester grades were predicted from first-semester grades, the validity coefficients for nonveterans were .66, .68, and .60; the corresponding figures for prediction of freshman grades from preadmission data were .65, .66, and .54. In the two groups where eighth-quarter grades were predicted from average grades in the first two quarters, the validities were only .45 and .62 as compared with validity coefficients of .76 and .70 for the prediction of freshman grades. Thus, first-year college grades can be predicted about as adequately from data available at entrance as later college grades for a single term can be predicted from initial college average.

The Effect on Validity of Time of Taking Aptitude Tests

At two institutions (Adams and Stewart) there was considerable variation among veterans with respect to time of taking the aptitude test. The test employed at these two institutions was the Scholastic Aptitude Test of the College Entrance Examination Board. Many of the veterans had been admitted to college, after taking the tests, at the time of graduation from high school, although they did not matriculate until after their war service. Others applied, were tested, and were admitted after war service. This situation made it possible to study the time of testing as a variable in relation to the predictor and criterion measures. Such a study is important because at most institutions the testing occurred at the time of entrance, which was soon after high school graduation for the nonveterans, but a varying number of years after graduation for the veteran students. The problem is also of interest to college admission officers, who may feel that they should discount the results of tests taken a year or two prior to application to college.

At Adams, the correlations involving the variable date of testing were uniformly low, varying from -.08 to .21, and at Stewart they ranged from -.04 to .10. Except for the possibility of a slight increase in verbal ability scores, the evidence indicates that, within the time limits and particular tests used, date of testing is a matter of little significance.

The results indicate that, at least so far as the College Board Scholastic Aptitude Test is concerned and for the time period here studied, the time of taking the test has little effect on the predictive value of the test and little relationship to the predictive measures employed.

Describing a College from Its Students' Questionnaires

A questionnaire such as the one employed in this study may be a useful device when employed by a college administration for the purpose of inquiring into the characteristics of the students at its college and their attitudes toward the educational program. Such an instrument is particularly useful when reference data are available which permit students in the particular college group to be compared with students at other institutions. Some of the outstanding characteristics of two college groups as revealed in the questionnaire responses will be described here, merely to illustrate the potential value of a questionnaire like the Student Opinion Questionnaire which was employed in this study for getting a picture of an institution or one of its divisions. The results will be based on the findings for freshman nonveteran male students only. The "average college" referred to in the following discussion is the median of the twelve basic college groups employed in this study.

Adams University is a private college for men located in an eastern city. Midwest Tech is a coeducational land-grant college located in a midwestern city. The code names are of course used in order to preserve the anonymity of the colleges. (Adams had the largest number of nonveteran students among the twelve basic groups; Midwest Tech engineering students were selected to represent the three engineering college groups.)

Freshmen at Adams University

Background Characteristics. Freshmen at Adams were of about the same age as those in the average university, and they came from small towns and large cities in about the same proportions as students at the average college. Considerably fewer had had full-time work experience; 93 per cent had never had a full-time job, while in the average group the percentage was about 75. The fathers of Adams freshmen were better-off financially; 60 per cent reported a family income greater than $6,000, as compared with about 25 per cent in the average college. The fathers were also better-educated; 60 per cent were college graduates, as compared with about 25 per cent in the average college. About two-thirds of the freshmen had attended private schools, while at most colleges almost all had attended public high schools. More than half of the freshmen considered themselves very well prepared for college, as compared with about 30 per cent in the average group.

Factors Related to Motivation. Adams freshmen gave "general knowledge" as their reason for attending college considerably more often than usual, and less often said they went because a college degree was necessary in order to enter a chosen profession. They planned to enter a profession requiring college graduation or graduate study no more often than the freshmen in the average college, and they resembled the typical freshmen with regard to certainty of vocational choice. There were no striking differences with respect to judgments about the difficulty of college work, the importance of college grades or graduation from college, or tendency to keep up-to-date in assignments.

Worries. Adams freshmen did not in general differ very much from freshmen in the average university with regard to tendencies to worry. They were near the median group in amount of worry about such things as deciding what course of study to follow, inferiority, nervousness, getting to know people socially, and making up a deficiency in preparation for some course. It is particularly interesting to note that they worried about making ends meet about as much as the freshman student in the average college. Adams freshmen worried slightly less than usual about being unable to concentrate and getting accustomed to college study, and they worried somewhat more about relations with girls. More of them felt that worries had not interfered with college work than in the average freshman group.

Expenditure of Time. Adams freshmen spent considerably more time studying than freshmen usually do; almost half reported 25 hours or more a week as compared with about one fourth in the average group. They also spent considerably more time in bull sessions (almost half devoted six or more hours per week to this activity) and attending evening lectures given by visiting lecturers or local faculty members. They spent less time than freshmen in the average college group in social activities (perhaps because Adams is not coeducational) and in reading or studying material related to courses but not assigned. They did not differ appreciably in time spent attending classes, in athletics, extracurricular activities, or paid employment.

Attitudes Toward the College. An unusually high proportion of Adams freshmen expressed satisfaction with the kind of education they were getting, and more than usual felt that most or all of their teachers were good teachers. On the other hand, the proportion who felt they were really interested in most or all of their courses is somewhat lower than in the average group. Adams students resembled those in the average institution with respect to feelings about the worth-whileness of college studies, their evaluation of their study facilities, and amount of enjoyment of their studies.

Freshmen in Engineering at Midwest Technological University

Background Characteristics. With regard to background characteristics, Midwest Tech engineering freshmen differed from those in the average university group most notably with respect to size of home community; 40 per cent came from farms or towns of less than 2,500 people, while in a typical group the proportion was less than 15 per cent. These freshmen tended more than usual to consider themselves poorly prepared for getting the most out of their courses. They resembled the average freshman group in age, amount of full-time employment, and fathers' income and education. Practically all had attended a public high school.

Factors Related to Motivation. Freshman engineers at Midwest Tech appear in general to differ somewhat from those in the average group with respect to certain motivational factors. They more often went to college in order to prepare for a better-paying job and less often to get necessary training for entering a profession. They less often planned to enter a profession which requires graduate study, and fewer were certain of their vocational choice. Fewer considered college graduation absolutely necessary in order to do the kind of work planned, and they tended more to consider college grades fairly important rather than very important. They did not differ markedly from freshmen in the average group with respect to judgments about the difficulty of college work or amount of effort exerted in course work, but they tended more to keep ahead in completing assignments.

Worries. Midwest Tech freshmen tended to resemble freshman students in the average college group with respect to amount and kind of worry. They worried somewhat more about feelings of inferiority and about making up a deficiency in preparation for some course. With respect to other sources of worry--inability to concentrate, getting accustomed to college study, deciding what course to follow, making ends meet, nervousness, getting to know people socially, relations with girls, health problems, and housing--they resembled the freshmen in the average group. They did not tend to feel more or less than usual that worry had interfered with their college work.

Expenditure of Time. With respect to expenditure of time, only one outstanding characteristic of the Midwest Tech engineering freshmen may be noted--they spent a much greater amount of time in attending classes, laboratories, and other regularly scheduled course meetings than students in the average college group. This finding is undoubtedly a function of the fact that students in an engineering college have a great deal of laboratory work; but time spent in classes and labs by Midwest Tech nonveteran freshmen was greater than for the two other engineering schools included in the twelve basic groups. The median number of hours is about 31, as compared with 28 and 21 in the other two engineering schools. With respect to other activities--studying, athletics, extracurricular activities, social activities, attending lectures and concerts, bull sessions, paid employment, and voluntary reading and study--the Midwest Tech freshmen were quite similar to freshmen in the average college group. A slight tendency was noted on a number of these activities for a somewhat greater proportion of the students than usual to fall in the intermediate or moderate category.

Attitudes Toward the College. Midwest Tech engineering freshmen expressed a greater amount of dissatisfaction with the kind of education they were getting, more often preferred some other school or division at the university than the one they were enrolled in, and less often expressed the opinion that most or all of their teachers were good teachers than freshmen in the average college. However, they expressed about the usual interest in their courses, enjoyment of their studies, and evaluation of the worth-whileness of college study, and were satisfied with the study facilities to about the usual extent.

In interpreting summaries such as the foregoing, knowledge of the characteristics of the particular college would obviously be essential. Many of the findings might be of considerable importance when viewed in the light of some local procedure or custom. The foregoing brief descriptions are intended merely as illustrations of the potential value of a study of student characteristics and attitudes by use of a suitable questionnaire.

RB-50-11

RESEARCH BULLETIN

ADJUSTMENT TO COLLEGE

A STUDY OF 10,000 VETERAN AND NON-VETERAN STUDENTS IN 16 AMERICAN COLLEGES

Chapter II. The Plan of the Study.

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and

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Educational Testing Service

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Chapter II

PLAN OF THE STUDY

Purposes of the Study

Since about 1945, American colleges have been crowded with students, a large proportion of whom are veterans of the recent war. In part, the influx was an outcome of a new feature in the educational scene--the educational provisions of the Federal law commonly called the GI Bill of Rights. Many of these veteran students would not have attended college without the aid thus provided. At the beginning, considerable concern was expressed regarding the possible effects of combat and of other features of wartime service upon the adjustment of veterans to the life of colleges typically designed for a less widely experienced student body.

The experience of university faculties quickly demonstrated that the more pessimistic views were unfounded. University teachers and deans reported that the veterans were alert and industrious students, that their influence on the undergraduate body as a whole was wholesome, and that the incidence of events that could be traced to battle shock was much smaller than had been anticipated. Numerous articles were published in newspapers and popular magazines in which rather glowing accounts of the scholastic success of veteran students were presented. Veteran students were almost universally reported to be superior to nonveterans in academic achievement.

The Carnegie Foundation for the Advancement of Teaching became interested in the problem of the academic success of the veteran student in college, and the College Entrance Examination Board was requested to make a study investigating the relationship between veteran-nonveteran status and academic success in college. The College Board agreed to conduct such an investigation, with the support of the Carnegie Corporation. The primary objectives of the study were to answer the following questions:

1. Do veteran students make better grades in college, in relation to their ability, than nonveteran students?

2. What light does information about background, attitudes, and other qualities throw upon veteran-nonveteran differences?

3. How do veterans who could not have attended college without the financial assistance provided through the GI Bill compare with veteran students who were financially able to attend college?

The third of the three objectives, that of comparing veterans who were enabled to attend college by the educational provisions of the GI Bill with those who were financially able to attend college, has evident implications for any sort of plan for subsidizing higher education through scholarships or other types of financial aid.

The analysis of the data needed to study the three points specified would furnish information relating to numerous other questions of interest to educators. How well can scholastic success in college be predicted from aptitude test scores and measures of high school achievement? What improvement in prediction can be effected by combining various predictors of college success? Are there differences between veterans and nonveterans with regard to the relative effectiveness of predictors for forecasting college achievement? Of what significance is the differential in time of taking aptitude tests in relation to time of entering college? Are veterans who enter college as freshmen handicapped during the first term, in comparison with nonveterans, so that a warm-up or refresher period might be desirable? In the case of the veteran whose education was interrupted by the war, is a period of readjustment necessary, or does he come back fired with enthusiasm which leads to temporary overachievement? Questions of this sort were taken into account in designing the study.

The best opportunity for making such a study presented itself in the fall of 1946, which was the time when the maximum number of veterans (particularly veterans who had actually experienced combat overseas) were enrolling in college. It was felt that the academic year 1946-1947 was the optimal time to study the question of the effect of war service on college achievement. Students enrolled at that time would possess to a marked degree the characteristics which make veterans different from nonveterans, and would be sufficiently numerous to yield statistically stable results.

The General Plan

The general plan of the study, as it finally evolved, may be briefly outlined as follows:

Choice of Colleges. It was desired to obtain data for both veteran and nonveteran students from a number of institutions which were of varied types, size, and location. Criteria to be used in selecting colleges included number of cases, availability of suitable predictor scores, and availability of suitable criterion data. Insofar as possible, it was also desired to follow the principle of diversity with duplication in the choice of colleges: that is, to select matched pairs representing a variety of types. The selection of institutions was made primarily on the basis of questionnaires which were mailed to thirty-six colleges and universities which were considered likely to meet the various requirements of the study.

Collection of Data. During the spring of 1947, substantially all of the participating colleges were visited by a member of the College Board staff, at which time a paid supervisor was selected to have charge of data collection. In conference with the supervisor and other college officials, decisions were made regarding the groups of students to be studied, and regarding the criterion and predictor variables to be used. These data were obtained usually during the summer, after completion of the spring term.

Preparation and Administration of a Questionnaire. In order to obtain information on personal characteristics which might account for any observed difference between veterans and nonveterans in college achievement, a questionnaire was prepared. This questionnaire contained items dealing with biographical history, attitudes toward college, vocational aims, disposition of time, worries, and other areas thought to have a possible relationship to college success. The questionnaire was administered by the supervisor at each college to students in the selected populations at his institution.

Coding of Questionnaires. A staff of carefully selected coders was trained to code the questionnaire items. Coding was necessary in order to permit the use of tabulating machine equipment in the analysis. Many of the items were precoded and therefore presented no particular problems; others, however, required careful judgment in order to assign each response to one of a number of categories that were chosen on the basis of study of samples of questionnaires.

Analysis of Academic Data. In order to bring veteran-nonveteran differences into sharper focus, each separate analysis of academic data was based upon a carefully defined group of students. Each of these defined groups was limited to students enrolled in a specific division of a particular university who had entered that division at a specified time (or at specified times). Twenty-five such groups were selected for study in the sixteen colleges. These groups were in turn subdivided into male veterans, male nonveterans, and (in nine of the groups) female nonveterans. In all, fifty-two such subgroups were included in the analysis of the academic data. For each of these, intercorrelations, means, and standard deviations of predictor and criterion measures were computed.

From the outset, it was considered essential that, in any comparisons of the relative achievement of veteran and nonveteran students, allowance be made for any possible differences in ability. More specifically, the comparisons should depend upon how far each of the two groups exceeded or fell short of the level of achievement expected of it on the basis of scores on suitable predictors. At this point, however, a basic problem arises: are the conventional predictors of academic success equally appropriate for both groups?

By means of analysis of covariance procedures, it is possible to make a rigorous check on the appropriateness of the predictor before proceeding to the actual comparisons of achievement relative to ability. Thus, in the procedure followed in the study, the first steps provided a basis for evaluating the comparability of the predicted grades; if the results of these steps met specific requirements, comparisons of veteran and nonveteran grades (after allowance for ability differences) could be made with reasonable confidence.

Analysis of Questionnaire Data. An Adjusted Average Grade (AAG) was calculated for each male student in sixteen of the twenty-five groups studied, for use in analysis of questionnaire responses. A student's AAG is a measure of the extent to which his grade was higher (or lower) than would be expected on the basis of his predictor scores. The use of this index made it possible to determine readily whether the students who gave any particular response to a question were, on the average, performing above or below their expected level in academic work. This type of information is particularly informative when veterans who chose a particular response to a question are compared with nonveterans who chose the same response. In addition to mean AAG's for each item, the number of students choosing each response was also tabulated and studied. The analysis of questionnaires had, therefore, two purposes: to throw light upon the "overachievement" of veteran and nonveteran students, and to provide descriptive information regarding background, experiences, and attitudes of the students.

The tabulation of mean AAG for each response to a question for veterans and nonveterans separately made it possible to determine, for each college group, whether the difference between veterans and nonveterans choosing a particular response was greater than, equal to, or less than the difference in that college group as a whole. By counting the number of times that the difference in AAG was more favorable to the veterans for each response and for each college group, it was possible to determine whether a particular question helped to account for the difference in achievement between veterans and nonveterans.

In order to study the problem of the relation of economic factors to college achievement, the student's own statements as to the effect of the GI Bill upon his decision to attend college was made the basis of further investigation. The relation to AAG was studied for the sixteen college groups, and a more comprehensive study, including cross-tabulations with other questionnaire material, was carried out in one college group.

The above paragraphs give a very brief outline of the general procedures used in the study. Various aspects of this plan are discussed in somewhat greater detail below.

Selection of Colleges

It was desired that the study of veterans' achievement in college be based on data obtained from a variety of types of institutions, including coeducational and men's colleges, private colleges and colleges supported by state or municipal funds, large and small institutions, colleges with various curricular emphases (such as liberal arts, engineering, and agriculture), both heavily endowed colleges and colleges with less endowment, and colleges representing various geographical regions of the United States. It was also desired that pairs of colleges with roughly the same characteristics be chosen. Further restrictions in the choice of colleges included adequate numbers of students, availability of suitable data, and willingness of the college to participate in the study.

The first step in selecting colleges was to study Good's Guide to Colleges, Universities, and Professional Schools in the United States (American Council on Education, 1945). A tentative list of colleges which seemed to meet the criteria for inclusion in the study was prepared. The number of colleges in this list was reduced to 36 on the basis of conferences with people who had wide acquaintance with colleges throughout the country.

Letters were sent to the presidents of the 36 colleges by Dr. O. C. Carmichael of the Carnegie Foundation for the Advancement of Teaching; each letter briefly described the objectives of the study. A few days later a letter and a brief questionnaire were sent from the College Entrance Examina-

Collection of Data

A member of the College Board staff visited each of the participating institutions, with the exception of Western State University, for the purpose of making detailed arrangements for the collection of data and for the admin-

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tion Board to the same persons. Anonymity of the colleges in the published report was promised to the institutions who wished to participate in the study.

The questionnaire sent to the college presidents was designed to provide information which would be useful in judging whether or not the institution was an appropriate one to include in the study from the standpoint of adequacy of data. It furnished a convenient and uniform method for the college to report: (1) the number of veteran and nonveteran students entering each college or division of the university in the fall of 1945 and in the fall of 1946; (2) information regarding the program of intelligence or scholastic aptitude testing, including names of tests used, whether tests were normally taken near the completion of secondary school or at the time of entrance to college, and the proportion of students having scores; (3) whether or not some over-all measure of achievement (such as average grade or grade-point average) was routinely available for these students; (4) what specific courses were taken in common by all or by a large proportion of the freshman students; and (5) whether or not some measure of scholastic success in high school was available for a large proportion of the entering freshmen. A question was included to ascertain whether or not the institution wished to participate in the study.

Twenty-six of the colleges indicated that they wished to participate in the veterans study and returned questionnaires. Seven institutions could not or did not wish to participate, and from the remaining three colleges there was no reply or a noncommittal reply, with no reply to follow-up letters. The usual reason given for not wishing to participate was the pressure of work in the registrar's office, which is understandable in view of the heavy enrollments during this period of time.

Nine of the twenty-six colleges which expressed willingness to participate in the study were not included because of an inadequate number of cases in one or more of the groups to be studied or because of the lack of certain crucial information. Data were obtained from seventeen colleges. One institution was dropped from the study after the data had been collected, since needed data were available for too few students; so that the statistical analysis is based on groups from sixteen colleges and universities.

The participating colleges will be referred to in this report by code names. The private colleges were given pseudonyms which are common American surnames assigned at random with no attempt to make the name carry any implication as to any characteristic of the institution. The publicly supported institutions, including both state and municipal colleges, were given geographical names which describe in a general way the location of the institution. The following is a list, by geographical section, giving the code name and a brief description of each institution:

istration of the questionnaire.[1] Western State was not visited because of considerations of time and distance, and the arrangements there were made entirely by correspondence. Prior to the visits to the remaining institutions, a letter was written requesting that preliminary arrangements be made for selecting a supervisor to have charge of the data collection and questionnaire administration.

The contribution of the supervisors to the execution of the study was substantial. In a number of schools, a member of the college personnel staff or of the Psychology Department acted as supervisor; in others, graduate students carried this responsibility.[2] The proposed study was discussed in some detail with the supervisor and other interested persons at each institution visited, detailed plans were drawn up for the data-collection and questionnaire-administration, and the plans were summarized on a check-list previously prepared for that purpose. This check-list was designed to permit the recording of (1) definitions of the groups for whom data were to be obtained, (2) a list of the criterion data to be obtained for each group, (3) a list of the predictor data to be obtained for each group, (4) detailed plans for administration of questionnaires, and (5) arrangements for special administrations of achievement tests.

The original plan of the study called for the administration of achievement tests in mathematics, physics, or chemistry in institutions where the curriculum for the group to be studied included such courses for all students. The intention was to administer such examinations during the final examination period for the purpose of supplementing regular course grades by objective examinations which could be used as additional criteria of academic success. Most colleges, however, were unable to cooperate in this phase of the study. Indeed, several institutions stipulated that their participation in the study was contingent on the agreement that no achievement tests be given. Arrangements for administering achievement tests were made at only one institution. However, when the tests were actually administered and scored, it was found that the difficulty of the tests was not appropriate for the students. No specially administered achievement tests were therefore used in the study.

Groups for Whom Data Were Obtained. At the time when the data were collected, it was conceived that three main types of study could be executed: (1) comparisons of male veteran students who entered in the fall of 1946 with male nonveterans and female nonveterans who entered at the same time; (2) similar studies for students who entered in the fall of 1945; and (3) comparisons of male veterans whose college careers were interrupted by war service and who returned to college after the war with the best available control group. No effort was made to include female veterans, since the preliminary survey showed that this group was too small to warrant study.

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[1] Mr. Donald Peterson and the senior author of this report were responsible for making these arrangements with the cooperating colleges.

[2] It is regretted that individual acknowledgment in this report is precluded by the decision that complete anonymity of the colleges should be maintained.

Collection of data on adequate numbers of students who entered in the fall of 1946 proved to be relatively straightforward; similar efforts to obtain groups of adequate size among students entering in 1945 proved to be unexpectedly difficult. Interestingly enough, it was the nonveteran group which was frequently inadequate in size; the operation of selective service after the cessation of hostilities, together with the rather rigorous requirements for inclusion in the group, appeared to be the main sources of the difficulty. As a result, only one of the twenty-five groups actually studied was limited to students entering during the academic year 1945-1946. In a few other instances, students entering in the fall of 1945 were pooled with students entering in the fall of 1946 for analysis.

In the collection of data for the study of veterans whose schooling was interrupted, the basic plan was to limit the group to veterans who had completed one year prior to interruption and one year after interruption. For three groups, this plan was followed. In two additional groups of interrupted veterans, however, it was found desirable to increase the flexibility of the defining pattern in order to obtain larger groups.

Logically, it would seem desirable to use male nonveterans who had experienced a similar interruption for comparison with the interrupted veterans. In practice, however, it proved to be impossible to locate more than thirty interrupted nonveterans in any one group. Consequently, nonveterans whose schooling was not interrupted, but who were otherwise as similar as possible to the interrupted veterans, were selected for this purpose. Thus, for three of the groups, male nonveterans who entered in the fall of 1945 and who completed two full academic years consecutively formed the comparison group. For the two interrupted groups including veterans having a flexible pattern of interruption, the uninterrupted nonveteran comparison group was composed of students entering in the fall of 1939. Care was taken, of course, to ensure that there was no reason to doubt the comparability of grading standards before determining that the control group was suitable.

Criterion Data. The criterion data included average grades, as determined by the college in which the student was enrolled, or by calculation from data supplied by the college. In addition, grades in specific courses, such as English or mathematics, were obtained in cases where the course had been taken by all or practically all the students. In deciding whether or not a particular variable was to be obtained, it was considered desirable to include the variable if there seemed to be a reasonable chance that it would be available for practically all students and if it appeared to have particular significance.

Other types of criterion data which were considered and included in certain instances were such variables as academic standing (e.g., "good standing, probation, dropped") and number of visits to the health department for psychiatric problems. Because of the very small proportion of students in these extreme categories, however, and for other practical reasons, these data were not used in the statistical analysis. Attendance at classes was considered but not included in any instance because of variability in the accuracy with which absences were reported, and because of differences which were likely to occur between veterans and nonveterans in the keeping of attendance records due to certain Veterans Administration requirements.

Predictor Variables. The colleges had originally been selected in part on the basis of the availability of adequate predictor data. Scores on some intelligence or scholastic aptitude test were available in all colleges; the most usual test of this sort was the American Council Psychological Examination (ACPE). In most cases, some measure of high school achievement was also obtained, such as high school average grade or rank in high school class. In addition to the intelligence test score and high school grade, other data which were thought to be potentially good predictors of college achievement were included; achievement tests used by the college for admissions or for sectioning being the most common example. In some colleges composite scores or predicted freshman grades were available, and these were also included. Still other variables of theoretical interest were obtained, although they were not expected to be good predictors of achievement. Examples of such variables are date of high school graduation and date of taking aptitude and achievement tests; there was considerable variability on these factors for veteran students in certain institutions.

As was true for criterion data, data for any predictor variable was included if there seemed to be a reasonably good likelihood that it would prove useful. Data on a number of variables were later excluded, mainly because more detailed examination showed missing data on an excessive proportion of students or because other available variables were judged to be measuring much the same thing.

A variety of methods of recording data were used--hand-copying to rosters, photostats, microfilm, and punched cards--depending upon such considerations as cost and the facilities available at the particular institution.

Preparation and Administration of the Questionnaire

The primary purpose of the questionnaire was to discover what factors are related to any observed tendency for veteran students to overachieve in comparison with nonveterans. The questionnaire which was developed accordingly contained items relating to as many hypotheses as could be developed on an a priori basis for explaining veteran superiority in academic achievement.

Development of the Questionnaire. The first step in the questionnaire development was to jot down ideas about possible reasons for veteran-nonveteran differences in achievement or about factors thought to be generally related to academic achievement. Many ideas were contributed by members of the Advisory Committee; others were developed in conference with members of the Veterans Administration Office of Coordination and Planning. Some of the ideas are shown in the following list:

Type of military service
Branch of service
Number of USAFI courses taken
Attitudes toward military service
Presence of physical handicaps
Financial status
Housing conditions
Type of preparatory school
Age
Marital status
Number of children
Study conditions
Vocational aims (nature and definiteness)
Attitudes toward teachers
Extra-curricular activities
Social maturity
Feeling of "urgency"
Tendencies toward neuroticism
Reasons (or rationalizations) for going to college
Satisfaction with college attended

A number of interviews with veteran students were conducted by those who developed the questionnaire with the view of getting further insights and hypotheses. Further leads for questionnaire items were obtained from the responses of ninety-nine university presidents to a questionnaire sent out in January of 1947 by President Raymond Walters of the University of Cincinnati. President Walters had questioned these college presidents concerning the problems of the veteran in college, and he generously made the completed questionnaires available to the staff for further study.

Early in March of 1947 two experimental versions of the questionnaire were developed and tried out on approximately 400 freshman students at a large eastern coeducational university not used in the major part of the study.[3] The questionnaires were administered to freshman students in English sections. The two forms differed with respect to method of getting at certain biographical information and in the number of free-answer items. The two methods of getting biographical information which were tried were (1) a tabular method, in which students were instructed to enter, for each year from 1939 to 1946, the number of months spent in certain activities; and (2) a series of multiple-choice items covering the same ground. Primarily because of greater ease of coding, the latter method was selected for the final form of the questionnaire. Comparison of free-answer responses with analogous multiple-choice responses provided information as to the adequacy of the latter items and suggested appropriate revisions. Free-answer comments were also used to suggest additional items for inclusion in the questionnaire.

Another experimental variable was introduced in the trial questionnaire administration for the purpose of studying the effect of requiring a signature. Half of the Form A questionnaires were administered with a face sheet which required a signature and half with a face sheet which did not require a signature. After coding and tabulating the responses, the frequencies with which the multiple-choice categories had been checked for signed and unsigned questionnaires were compared. The comparison showed that requiring a signature had little effect on the distribution of responses.

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[3] Mr. John Clausen was primarily responsible for the development and pretesting of the questionnaire.

No attempt will be made to summarize here the detailed results of the questionnaire tryout. However, the results for certain items may be of interest. One item on which one might expect the signature to affect students' responses was, "How would you rate, as teachers, the faculty members who have taught you this past term?"

The results, for 129 signed and 143 unsigned questionnaires, were as follows:

Answer	Signed	Unsigned
All are good teachers	04%	05%
Most are good teachers	39%	43%
Some are good, some rather poor	53%	48%
Most are rather poor teachers	04%	04%
All are rather poor teachers	---	---

Another item where the effect of requiring a signature would seem to be extremely important was, "If you could be admitted to (and could get housing at) any other university you might choose, do you think you would still want to attend the institution at which you are now studying?" The results for 129 signed and 142 unsigned questionnaires were as follows:

Answer	Signed	Unsigned
Yes, I'm quite sure I would still want to attend the university I am now attending.	68%	69%
I might want to go elsewhere, but I'm not sure.	24%	23%
No, I would definitely attend some other university.	08%	08%

On a few items, which tend to involve the self-esteem of the student rather than his evaluation of the institution, slight differences did appear. For example, one item was, "How often, during the past four weeks, have you gone to evening lectures given by visiting lecturers or local faculty members but not required by any specific course?" The results from 127 signed and 143 unsigned questionnaires were as follows:

Answer	Signed	Unsigned
Not at all	54%	65%
Once	26%	18%
Twice	13%	13%
Three or more times	07%	04%

The questionnaires which asked for a signature on the face sheet carried these instructions:

> "Please print your name in the space below. Soon after the questionnaires have been collected, a number will be assigned to identify your questionnaire, and this cover sheet will be torn off. After certain other data have been obtained from the Registrar, you will be known by number only. No one working with the questionnaire will know the name of the person who filled it out."

In the actual study, it was of course necessary to obtain the names of the respondents, in order to collate the questionnaire responses with academic data. The instructions used were similar to those above (see Appendix C1). In the final form of the questionnaire, however, a separate identity sheet was used which was inserted under the front cover of the questionnaire booklet. Identity sheets and booklets bore corresponding serial numbers; this permitted students to record their names and turn the identity sheets in to the administrator separately. The conditions were thus, from the student's point of view, slightly more favorable from the standpoint of anonymity than in the case of the signed pretest questionnaires. It is therefore judged that the effect of requiring the students to identify themselves in the regular administration of the questionnaire had small influence on the nature of their responses.

In the final form of the questionnaire, a few new items were added, a few items were eliminated, and a number were revised. The final version of the questionnaire which was used in this study is included in Appendix C2 of this report; it was called the Student Opinion Questionnaire.

The Student Opinion Questionnaire contains a variety of types of items, most of which were to be answered by all students. One section, however, was to be answered by veterans only and another by married students only. In order to indicate briefly the general nature of the questionnaire, the various types of items will be indicated.

A number of items deal with facts of personal history and status. Included in this category are such items as kind of secondary school attended, date of last full-time attendance in secondary school, length of any full-time employment, father's education, type of living quarters, and, for veterans only, length of service outside the United States, highest rank or rating, and amount of college training received while in the service. Items in this category were for the most part objective and factual and would be little influenced by the particular time when the questionnaire was administered.

Another group of items is related to attitudes of students toward college and college grades; these items deal with such questions as importance of college grades, satisfaction with present institution, enjoyment of studies, interest in present courses, and reasons for coming to college. Still another category includes items dealing with attitudes toward self: evaluations of one's own effort and work habits and judgments of the extent to which worries have interfered with college work. Responses to items of these types are complex judgments which are highly subjective; since the judgments were made after the student had some knowledge of his success in college, the interpretation of the responses as rationalizations cannot be overlooked.

One page of the questionnaire is devoted to worries and anxieties. The student was to indicate whether he was bothered very much, some, or little by each of a list of common problems, including making ends meet, health, concentration, nervousness, relations with members of the opposite sex, etc. He was also given an opportunity to list other problems in an open-end question. Another important item was concerned with the student's disposition of time; he was asked to indicate the number of hours spent in a typical week in attending classes, studying, athletics, bull sessions, paid employment, etc.

In addition, an item was included which was intended to furnish directly a means of classifying veteran students with respect to the importance of the educational benefits of the GI Bill in determining college attendance. Several other items, intended as check items on this point, were also included.

Directions for administering the questionnaire were prepared and distributed along with the questionnaire to the participating institutions; a copy of these directions is included in the Appendix.

Administration of the Questionnaire. The method of questionnaire administration was selected on the occasion of the visit to the participating colleges. Whenever possible, the questionnaire was filled out in groups, using the directions for group administration. The most common method was to give the questionnaire to freshman English sections or to students in some other course which contained a majority of the students desired. This sometimes necessitated administering considerably more questionnaires than were to be used in the study, but was nevertheless the most satisfactory method of getting the data. In other instances, the questionnaire was administered at a special assembly of students. Students who belonged in the groups to be studied but who did not get the questionnaire in the group administration were reached either by mailing the booklet with an appropriate letter and instructions or, at some institutions, by calling the students in to the university testing bureau or personnel office.

At some universities it did not prove to be possible to employ the group method of administration. The most common method then resorted to was that of mailing the questionnaires. With the assistance of the supervisors at these institutions, letters were prepared which made use of appeals which were thought to be particularly appropriate to the type of student involved. Follow-up letters were also sent when necessary in order to improve the proportion of returns. In other cases, it was possible to reach the students through their dormitory counselors or through the dean's office. The methods used at the various participating colleges are summarized below.

Eastern City University.
  Freshmen: Administered in English sections.
  Sophomores: Distributed by mail.

Adams University.
Freshmen: Distributed by freshmen counselors.
Sophomores: Distributed by mail.

Stewart University
Freshmen: Administered in English sections and distributed by mail.
Sophomores: Distributed by mail.

Miller University.
Administered in English sections.

Midwest State University.
Administered in Business Organization and Economics classes.

Midwest City University.
Engineering: Administered in classes.
Liberal Arts: Distributed in classes.

Littletown State University.
Administered in English sections.

Harris University.
Administered individually by testing bureau.

Evans University.
Administered at an assembly of freshmen and sophomores.

Central State University.
Administered in English sections.

Taylor University.
Distributed by mail.

Midwest Technological University.
Freshmen: Administered in English sections.
Sophomores: Administered individually by testing bureau.

Middle State University.
Freshmen: Administered in drawing sections.
Sophomores: Distributed by mail.

Douglas University.
Administered at an assembly.

Southern Technological University.
Administered at an assembly.

Western State University.
Administered in English sections.

The question of possible bias introduced by incompleteness of questionnaire returns will be discussed in connection with the results of the questionnaire analysis.

Coding the Questionnaires

A total of about 24,000 completed questionnaires were contributed by the sixteen institutions participating in the veterans study, an average of about 1500 for each college. More than half of these questionnaires were rejected before coding, however. The most common reasons for rejecting questionnaires were as follows:

1. The respondent was not a member of one of the defined subgroups selected for study.
2. The respondent was a member of a subgroup which was found to be too small to warrant statistical analysis.
3. The respondent lacked essential data on predictor and criterion variables.

About 11,000 questionnaires remained after the preliminary editing and were coded.[4]

The purpose of coding is of course to make possible the quantitative analysis of data which consist of verbal responses to questions. Many of the questionnaire items were precoded, i.e., the multiple-choice responses in the printed booklet bore numbers which were used to represent the answers selected by the respondents. Such items presented few difficulties. Other items, however, were of the free-answer type. The response consisted, in some cases, of filling in a number (to represent, for example, the number of hours per week spent in studying). In other cases the response consisted of a statement in the respondent's own words reflecting his attitude toward a particular question. In coding the responses, each answer must be given a number representing one of a number of categories into which all the responses can be classified. The first problem concerning questionnaire coding had to do with determining what these categories should be.

The first steps in determining the categories to be used in coding the open-end questions consisted in examining responses made by a sample of students, classifying their responses into trial categories, and trying out these categories on a second sample of questionnaires. For this purpose, a sample was drawn of about 100 questionnaires each from Douglas, Harris, Central State, Midwest Tech, and Southern Tech universities. The experience gained earlier from the pretest questionnaires also proved to be useful in planning the questionnaire-coding. After this preliminary work, a first-draft of an outline of procedures and a coding key were prepared. Following discussions of this preliminary outline by the staff and tryout of suggestions for revision on additional questionnaires, a complete coding manual was developed; those portions of the coding manual which pertain to the major open-end questions are reproduced in Appendix C3.

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[4] Mr. Robert C. Myers contributed extensively to this phase of the study in designing the coding plan, and in general supervision of the whole program of coding. Miss Henrietta Gallagher was the immediate supervisor of the coders.

The coding of Item 45 of the questionnaire deserved special comment. This item asks, "Briefly, what are the main changes you would like to see made in the program or organization of education at this college, in order to help you get what you are after in a college education?" Eight lines were provided for the student's answer. The purpose of including this item was to give the student an opportunity to make concrete suggestions or complaints about his college in a relatively unstructured situation. The item was suggested by some of the responses to President Walters' questionnaire, on which a number of college officials had commented on the veterans contributing a "more mature and purposeful tone" to undergraduate life, showing "broader social concepts" than the nonveterans, providing a "more mature outlook," and their "willingness to speak their mind and complain when they feel that something is wrong with any portion of the University administration." One purpose of the item was to compare veterans and nonveterans with regard to the number and nature of the responses given; the item is also interesting as a means of discovering the criticisms, complaints, and suggestions made by undergraduate students about their colleges.

In the preliminary examination of samples of questionnaires, it was found that comments given under Item 36 ("On the whole, how well satisfied are you with the kind of education you are getting?") and Item 38 ("Do you ever feel that the things you are studying in college are not really worth the time spent on them?") were essentially suggestions of the same nature as those made in answer to Item 45. It was therefore decided that for coding purposes all comments appended under Items 36 and 38 would be examined in conjunction with answers to Item 45 in determining the categories of remarks made.

After examination and experimental coding of several hundred questionnaires, a code comprised of forty-six categories and subcategories was set up for Item 45. This code was used in the coding of questionnaires for three institutions--Adams, Midwest Tech, and Stewart. A check on the reliability of coding which was made at this time indicated that coders were unable to discriminate among the categories with sufficient accuracy. For this reason, and because the coding proved to be too time-consuming, an abbreviated code was devised containing only twenty categories. A plan was also developed for consolidating the coding already completed for the first three institutions into the new code. The consolidated code was obtained in large part on the basis of plots made from the forty-six-category coding, in which the specific disagreements of a first and second independent coding could be noted. The result was that the "collapsing" of the codes for the first three institutions removed most of the disagreements. As will be seen later, subsequent studies of coder reliability showed satisfactory reliability. An excerpt from the revised coding manual (Appendix C3) shows the new categories for coding Item 45 and the method of consolidation used for the first three colleges coded.

A second problem involved in the coding of Item 45 responses had to do with the maximum number of responses to be coded for any one questionnaire. Tabulations for several hundred questionnaires showed that about 90 per cent of the respondents gave three or fewer codable comments. It was therefore decided to code three comments, if that many were made, and to reject any comments beyond that number. This decision of course resulted in the problem of which three comments to code, if more than three were made. A rigorous system was therefore set up designed to ensure that any two persons independently coding the same questionnaire would accept exactly the same comments for coding, and also to make sure that comments to Item 45 would not be overemphasized to the exclusion of comments to Items 36 and 38.

Somewhat similar but less complex problems were involved in the coding of other free-answer questionnaire items. The coding of these items need not be discussed here in detail, since the section of the Coding Manual and Coding Key which are reproduced in the Appendix will make clear the solutions which were accepted.

Coders were selected with considerable care. The maximum number working at any one time was nine and the average five. All were women college graduates. Accuracy rather than speed was emphasized; a good deal of attention was devoted to giving the coders an appreciation of the general objectives of the study and to giving them as a group a common basis of understanding with regard to the various coding categories. Morale was maintained at a high level throughout the three months required for the coding operation, despite the generally tedious nature of the work.

The coding of all questionnaire items was checked throughout the coding period. The coding of every item was checked by a second coder, and a spot-check of every fifth questionnaire was made by a supervisor. In addition, occasional studies were made of coding reliability for free-answer items by having a sample of questionnaires independently coded by two coders; then scatter plots were made, using the questionnaire categories assigned by the first coder and the second coder as the variables.

In connection with the coding of Item 45, a rather elaborate procedure was developed to ensure consistency of coding, which routinely involved independent coding, by two coders, of the same responses. The first coder wrote her selected code numbers on the left-hand margin of the front cover of the questionnaire booklet; the second coder recorded her code numbers in the appropriate code boxes. Then a clerk checked the two sets of code numbers by folding the booklet in such a way as to bring the two sets of numbers into juxtaposition. Disagreements were then examined by two different coders who in collaboration tried to agree on how the doubtful responses should be coded. In the occasional instances where no agreement could be reached, the final decision was made by a supervisor. Studies of the consistency of coding this item were made by comparing the two independent judgments of the first two coders. Agreement was found to be high even at this point before discussion of the disagreements.

Figure 9 illustrates a typical plot made for the purpose of studying the reliability of coding Item 45. In this example, based on 166 questionnaires from Evans University, the two independent judgments made by the coders agreed in 91 per cent of the cases. (The agreement is slightly enhanced by the fact that the matching was based on sets of three codes rather than individual paired codes.) The entries in the diagonal represent the cases where there was agreement; those off the diagonal indicate the number and nature of the disagreements. (The interpretation of the numerical codes is given in Appendix C3.) It may be noted that the agreement to be expected by chance, in this Figure, is about 15 per cent. The code "Y" was used to indicate no response. It will be noted that about half of the disagreements were in the Y categories; in other words, much of the disagreement had to do with whether or not a particular comment could be given a specific code under the rules laid down in the Coding Manual. A total of forty-five of the 498 responses were in disagreement. The disagreements in this nine per cent of the cases were, in accordance with the standard procedure outlined above, resolved by conference of coders not involved in the original coding.

Plots similar to that shown in Table 1 were made for a number of separate samples of questionnaires. The over-all percentage of agreement in coding Item 45 (at this stage prior to study of disagreements) was found, on the basis of tabulations of 1567 questionnaires, to be 89.6 per cent. The variation from sample to sample is indicated in the table below. (In showing numbers of cases, MV means male veteran, MN means male nonveteran, and FN means female nonveteran.)

Since these data for the coding of Item 45 are based on the stage prior to the discussion of the responses not agreed upon, it is judged that the final reliability of coding this item was quite satisfactory. It of course should not be assumed that the disagreements were entirely the fault of the coders; many of the responses not agreed upon were sufficiently ambiguous that it was sometimes quite arbitrary as to whether they should be coded at all, or which coding category should be used.

The accuracy of coding other open-end questionnaire items was studied in a similar manner. Item 11 ("What kind of work are you planning to do after you finish your studies? Describe the job as specifically as you can.") was the one other item where a high degree of subjective judgment was required of the coders and where a large proportion of the students gave responses. For three samples, comprising a total of 308 questionnaires, the first and second coders, working independently, agreed in 88.0 per cent of the cases. The percentage of agreement for the three samples was 92.0 per cent, 89.3 per cent, and 83.0 per cent.

It should be remarked that the accuracy of coding undoubtedly increased as the coding operation continued. Part of the training of coders inevitably occurred on the job. Some of the refinements as to procedures were instituted after coding had progressed through several institutions. Coding was probably not uniformly accurate for the questionnaires from a particular institution, since time was required for the coders to familiarize themselves with the unique types of responses which were likely to arise among students at a

CODING BY FIRST CODER

CODING BY SECOND CODER	01	10	11	20	21	22	30	31	32	40	41	50	51	52	60	61	62	63	64	70	NO DATA 1ST CODE	NO DATA 2ND CODE	NO DATA 3RD CODE	TOTAL
01	58	2						1															1	62
10		17	1																1				1	20
11			11			1																	1	13
20	2			29																				31
21	1			1	11	1																	1	15
22				2		19									1				1					23
30																						1		1
31								6	1															7
32									12														1	13
40																								0
41											1													1
50																								0
51												1												1
52																								0
60			1												9									10
61																								0
62																								0
63																								0
64				1											1				13					15
70		1		1																2		1	1	6
NO DATA (1ST CODE)			1																		40			41
NO DATA (2ND CODE)		3	2		1	1								1						1		91		100
NO DATA (3RD CODE)	1		2	1																1			134	139
TOTAL	62	23	18	35	12	22	0	7	13	0	1	1	0	1	11	0	0	0	15	4	40	93	140	498

FIGURE 9. RELATION BETWEEN TWO INDEPENDENT CODINGS OF QUESTION 45 (COMMENTS REGARDING COLLEGE) FOR 166 QUESTIONNAIRES OF EVANS UNIVERSITY STUDENTS. (Three codes were assigned to each questionnaire; in 21 instances the order of the three codes was altered in making the plot, thus slightly enhancing the agreement.)

Table 1

Percentage of Agreement in Initial Coding of Questionnaire Item 45 for Several Samples

University	Number of Cases				Per Cent of Agreement
	MV	MN	FN	Total	
Midwest City	11	18	29	58	94.8
Southern Tech	88	31	--	119	93.8
Midwest City	58	54	25	137	92.9
Central State	87	24	40	151	91.6
Evans	88	33	45	166	91.0
Miller	281	--	--	281	89.8
Taylor	19	40	94	153	87.1
Southern Tech	22	42	--	64	87.0
Miller	--	206	--	206	86.9
Eastern City	23	56	154	233	85.7

particular college. It was felt, however, that the limitations in reliability are those which characterize free-answer questionnaire coding generally; and that in general, the coding procedure was sufficiently sound to justify reasonable confidence in the results for these items.

The large majority of the questionnaire items were pre-coded, so that the question of coding reliability did not arise. In the few free-answer items not discussed above (e.g., highest rank attained during service, problems not included on the check-list) it was judged that the coding was so nearly objective or the responses were so few that formal reliability studies were not warranted. It appears, then, that reliability of coding is not a matter of particular interest except on Items 11 and 45.

Analysis of Academic Data

The primary purpose of the analysis of academic data was to determine whether or not veteran students made higher grades, in relation to their ability, than did nonveteran students. In order to obtain as precise a comparison as possible, it was considered essential to analyze data separately for each university, and, in institutions of complex organization, separately for each college or division. Analyses were based on groups homogeneous with respect to institution attended, the division within that university in which enrolled, and time of entrance in college. Each such group ordinarily included both veteran and nonveteran male students; in some cases female nonveteran students were also included. A total of twenty-five separate groups were defined by this process. The groups within each institution are shown in Table 2.

Colleges where differentiation into various divisions is delayed until after the freshman or sophomore year are classified as colleges of arts and science in this study. In all, seventeen groups were from colleges of arts and science (so defined), four were from engineering colleges, two from colleges of business, one from an agricultural college, and six groups involved interrupted veterans from arts and science and technological colleges.

Preparation of the Academic Data. In defining the specific students from each college to be included in the statistical analyses and in making the numerous detailed decisions required before analysis could begin, primary consideration was given to two objectives:

a. to bring into sharp focus any basic difference in relative achievement between veteran and nonveteran students; and

b. to provide data which would be as comparable as possible for the twenty-five groups chosen for analysis.

For practical reasons, the detailed planning of the study and the preparation of the academic data for analysis developed concurrently. In order that all analyses be based on the same students within a particular college group, the inclusion of any variable on which data were not complete required the exclusion from the analysis of students who lacked data on that variable. Thus in the final determination of the members of each of the twenty-five subgroups it was necessary to balance the information to be obtained from a particular variable against the proportion of cases to be dropped and the size and representativeness of the sample remaining, if the variable were included. Fortunately, two facts aided greatly in making the decisions: first, that many of the scores most appropriate for the study were available for substantially all cases; and second, that it was necessary or desirable to exclude students lacking data on certain variables (e.g., first-year grades) as a means of defining the sample.

Generalized Description of the Samples. The students included in the various studies were male veteran students, male nonveteran students, or female nonveteran students who belonged to one of the twenty-five groups chosen for study. These groups were defined in terms of the college or university, the college class (e.g., freshman in the fall of 1946) and the university division (e.g., College of Arts and Science). In general, each student included had earned a definite amount of college credit at specified periods of time. He had complete data on all variables chosen for statistical analysis in his group. He had not attended, as a civilian student, any other college or university; and in most groups, he had not received substantial credit (10 quarter hours) in specific courses for college work he had taken while in the armed services. In universities having several divisions, he had been enrolled in the designated division during the entire defined period, which was typically one academic year. Except for the editing on credit for armed service college training programs, the procedures were uniform for veterans and nonveterans. Typically, the veterans and nonveterans were not separated until the editing was completed.

Direct comparisons of grades of veterans and nonveterans (excepting only the "interrupted" groups) are thus limited to grades earned at the same time, in the same university, and in the same division within the university by veteran and nonveteran students. Students who have done part of their academic work at another college are excluded and veteran students who had extensive college training in basic academic subjects during their military career are usually excluded from the comparisons.

One additional detail of procedure should be noted here: the determination of veteran status. For making this classification, two main sources of data were possible: first, the student's own definition of his status in response to Item 7 of the questionnaire; and second, an indication by his college regarding his veteran status. The exclusive use of the first of these would have led to the elimination from the study of all students who did not complete questionnaires. On the other hand, exclusive use of the second source in accordance with a uniform definition would have involved excessive practical difficulties. Students having data from both sources were classified as follows: the data provided by the college were used to determine veteran status for the large freshman groups at Adams, Stewart, and Western State Universities and for the two interrupted veteran groups and their controls at Midwest Technological University; in all other groups, the questionnaire response was used as the chief basis of classification.

Comparison of the two sources in a number of institutions showed a high degree of agreement between the two methods of classification; accordingly, the veteran status of a small proportion of students who lacked questionnaires was determined from data provided by the colleges in several of the groups.

The first step in the actual analysis was to compute the intercorrelations of predictor and criterion variables.[5] For each group, separate tables of intercorrelations were computed for male veterans, male nonveterans, and, if they were included, female nonveterans. For certain institutions (Midwest Tech, Middle State, Western State, Douglas, and Adams) a larger number of variables was included than for the remaining institutions. The more complete analyses were in general made in instances where they were justified by the size of the sample or by the availability of variables thought to be of particular interest. The purpose was not only to study the relationships of the predictors to college achievement, but also to provide information for use in selecting variables to be employed in the analysis of covariance.

The analysis of covariance method employed in the study is one developed by S. S. Wilks. The method permits one to test successively three hypotheses regarding the regressions of a criterion on a predictor for two (or more) groups. Hypothesis A is the hypothesis that the errors of estimate about the regression lines (or planes) are the same for both (or all) groups; Hypothesis B is the hypothesis that the slopes of the regression lines (or planes) are the same; and Hypothesis C is the hypothesis that the intercepts of the regression lines (or planes) on the criterion axis are the same. The test of Hypothesis B is legitimately applied if Hypothesis A is not disproved, and, similarly, the test of Hypothesis C is legitimately applied if the hypothesis that the regression slopes are alike is not disproved. If the intercepts of the regression lines (or planes) on the criterion axis do prove to be significantly different, the interpretation of course is that the members of one group show a higher performance on the criterion than do members of the second group who are of similar ability as measured by predictor scores. The method has been generalized and computational procedures have been evolved for regression planes based on more than one predictor as well as for the single predictor situation.[6]

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[5] The extensive tabulations and analyses required by this study were executed by the Department of Statistical Analysis, of which Dr. Ledyard R Tucker is Head. Particular acknowledgments are also due to Mr. Harry Garrison, who was in charge of the IBM work, to Miss Henrietta Gallagher, who coordinated the analysis, and to Mrs. Judith Aronson, Head of the Computing Section.

[6] The contribution of Dr. Ledyard R Tucker, who developed an effective, systematic procedure for computing the necessary constants aided substantially in making the use of this procedure feasible.

In this study, the regression lines (or planes) to be compared are the regressions of freshman average grades on the predictor or predictors chosen for a particular group for male veteran and male nonveteran students in that group. Disproof of Hypothesis C is evidence that male veterans and nonveterans of similar ability differ in their college achievement as measured by grades.

The conceptions involved in the analysis of covariance procedure suggest a convenient and meaningful method for evaluating the amount of the difference between two groups. The procedure yields an estimate of the percentage of veterans excelling the average nonveteran, after allowing for differences in ability.

If it is found (in the test of Hypothesis B) that the regression lines or planes may be assumed to be parallel, then they may actually be made parallel by calculating a common slope. (The common slopes were already available from the test of Hypothesis B.) Each of the parallel regression lines or planes will intersect the criterion axis at some point; and the difference between the two points (the intercepts), measured on the criterion axis, is a measure of the extent to which one group excels the other. Since the units used for the criterion vary from one institution to another, it is desirable to find a measure which is more nearly comparable from group to group. Such a measure would be provided by dividing the obtained difference in intercepts by a suitable standard deviation. It was decided that the square root of the pooled error of estimate, based on the common slopes used in computing these intercepts, would yield the most appropriate denominator. This of course assumes that the pooled error of estimate is appropriate for both sugroups; the tests of Hypotheses A and B provide a check on this assumption. It is apparent that the resulting measure is a standard score whose unit is a standard error of estimate. From such units the proportion of veterans who excel the average nonveteran may be estimated by use of a table of normal curve areas.

This concept is illustrated in Figure 10. The left-hand distribution is for nonveterans and the right-hand distribution is for veterans; the means of these distributions are separated by an amount equal to the difference between the regression lines (or planes) expressed in standard error of estimate units. The proportion of cases falling in the diagonally shaded area may be obtained from a table of the normal curve; this value is an appropriate estimate of the proportion of veterans excelling the average nonveteran when ability is assumed to be equivalent. In the comparisons of male veterans with male nonveterans, the per cent of veterans excelling the average nonveteran is always reported. Percentages of less than 50 then indicate superiority of the nonveteran subgroup. Percentages greater than 50 indicate superiority of the veteran subgroup.

The criterion which was uniformly used in the analyses of covariance was freshman average grade, point-hour ratio, or some similar index based on course grades obtained during the freshman year. Grades in specific courses were also used in a limited number of analysis of covariance studies. The predictors varied from school to school, but typically two measures, combined through use of multiple correlation techniques, were employed: a

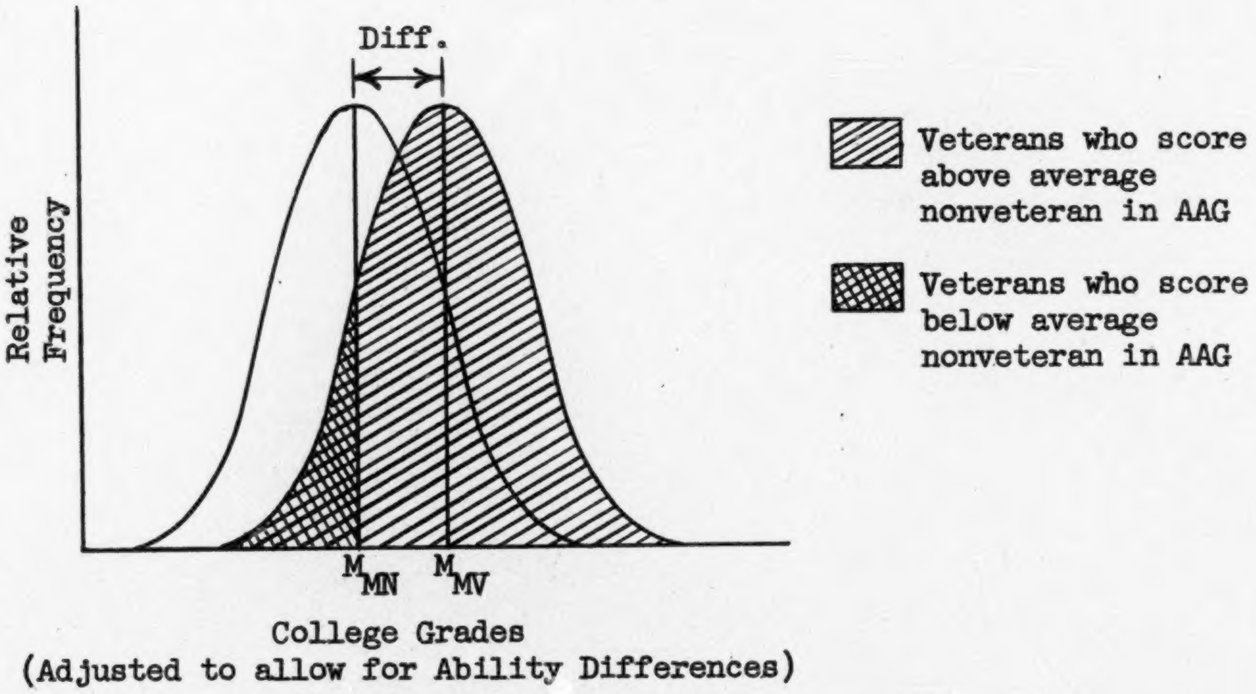
Diff.
Relative Frequency
▨ Veterans who score above average nonveteran in AAG
▩ Veterans who score below average nonveteran in AAG
M_MN
M_MV
College Grades
(Adjusted to allow for Ability Differences)

FIGURE 10. DETERMINATION OF THE PROPORTION OF VETERANS EXCELLING THE AVERAGE NONVETERAN, ASSUMING NORMAL DISTRIBUTION AND EQUAL STANDARD DEVIATIONS.

measure of high school achievement, such as average grade or rank in class, and a test or composite of test scores. The most commonly used test was the American Council Psychological Examination. Scores on College Entrance Examination Board tests were used for two colleges, and in a number of instances a composite score based on various scholastic aptitude and achievement tests or tests of tool skills was employed.

A slightly different approach was used in the case of interrupted veterans. Here it was assumed that the veteran's freshman grades, earned before war service, furnished the best possible predictor of grades earned after discharge from military service. In the typical study of interrupted veterans, therefore, the regressions of second-semester sophomore grades on first-term freshman grades for interrupted veterans and uninterrupted nonveterans were compared. The semester or quarter average grades falling between the first term of the freshman year and the last term of the sophomore year were not used in the analysis. The term just prior to induction, it was thought, might have suffered because of knowledge of the impending induction into the armed forces; and the term occurring immediately after the return from service might not have been typical, either because of need to readjust to academic life or because of a temporary enthusiasm leading to overachievement.

A total of fifty-two tables of intercorrelations, involving varying numbers of variables, and thirty-two analyses of covariance were computed in this phase of the study. The results of the analysis of academic data are reported in Chapter III.

Analysis of Questionnaire Data

The purposes of the questionnaire analysis may be stated as follows:

1. To provide a summary of the opinions, attitudes, and biographical background of veteran and nonveteran students, as they are reflected in the Student Opinion Questionnaire.
2. To see if the grades of students, equated in ability, are related to characteristics measured by the questionnaire items.
3. To see if the grades of veterans differ from the grades of nonveterans of equal ability and with similar characteristics as indicated by questionnaire responses.

The first purpose, to provide a summary of the opinions of students as they are reflected in the questionnaire, may be achieved merely by reporting the frequencies with which the various response categories of the questionnaire items are chosen. The attainment of the other purposes cannot so easily be achieved.

It would of course be possible to report, in addition to frequencies, the mean aptitude test score and the mean freshman grade of those students who chose each particular reponse category to each item. One could then draw certain conclusions about the relation of each item to college aptitude and to college grades. It was felt, however, that more meaningful results could be obtained if the items were analyzed in the light of a measure based on both aptitude and college achievement. A measure called Adjusted Average Grade was therefore employed in the analysis. The Adjusted Average Grade (AAG) is a measure, based on the standard error of estimate, of the extent to which a student "overachieves" or "underachieves"; it indicates the extent to which his grade falls above or below the regression line for his group, including both veteran and nonveteran students. Noting that the standard deviation of these scores is the standard error of estimate and that the mean deviation is zero, it is a relatively straightforward matter to obtain deviation scores having any desired mean and standard deviation. In this study, 130 was chosen for the mean and 40 for the standard deviation. The computational procedures are outlined in Appendix B2.

AAG's were not computed for all groups used in the analysis of academic data; it was judged that the labor of computing AAG and tabulating the results was justified only for groups which were of reasonable size and which were particularly appropriate from the standpoint of the objectives of this study. AAG's were not computed for female students in any college nor for those groups which because of small size, lack of a control group, or other considerations were least useful. In all, sixteen groups were judged to be suitable for the computations of AAG's.

For every item, then, a table was prepared showing, for each of the twenty-five groups, the per cent of male veterans, male nonveterans, and female nonveterans (if any) who chose each category of that item. In addition, for the sixteen selected groups, the mean AAG is shown separately for those male veterans and male nonveterans in each group who chose each category of the item. These detailed tables are included in Appendix A1.

The second purpose of the questionnaire analysis was to determine whether or not a statistically significant degree of relationship exists between an item and AAG. A method of attacking this problem was desired which would be feasible in the light of the large number of subgroups and of questionnaire items involved in this study. The solution found was an adaptation of the F-test. For each item, the mean AAG of students who chose a particular response was compared with the mean AAG of the students who chose other responses to the item; this procedure was carried out separately for veteran and nonveteran students in each subgroup for which AAG's were computed. Tables were devised to facilitate the application of the F-test. (The procedure followed is described in greater detail in Appendix B3.)

Each test thus resulted in a determination of whether an association (stronger than would be expected by chance) existed between the item and AAG for a particular subgroup of veterans or nonveterans.

Achievement of the third purpose required a method by which the background, attitudes, and other personal qualities of veterans and nonveterans could be directly tied in with the results from analyses of academic data. Since analysis of the questionnaire responses is the only available means for attaining this objective, the problem may be rephrased as follows: Is the difference between veteran and nonveteran students in Adjusted Average Grade consistently reduced or consistently increased when veterans and nonveterans are matched with respect to their responses to a particular questionnaire item? This restatement suggests a method of analysis which is a feasible and direct approach to the problem and which would be appropriate no matter what results were obtained from the analysis of the academic data.

The essentials of the procedure may be described as follows: The difference in mean AAG between veterans and nonveterans who chose a particular item category was compared with the difference in mean AAG for all the veteran and nonveteran members of each college group. If the difference was smaller for veterans and nonveterans matched with regard to response category, the difference between the differences was called minus; if greater, a plus sign was given. By chance, half of the signs so determined would be negative and half positive; a considerable departure from this ratio was assumed to indicate that the item involved a characteristic related to veteran-nonveteran differences in AAG. The departure from 50 per cent was evaluated in terms of the probability that a greater departure could be expected by chance.[7]

An example may make the procedure somewhat clearer. At Evans, among students who reported that graduation from college was absolutely necessary in terms of their vocational plans, the veterans had a mean AAG of 139; the nonveterans, of 126. The advantage of the veterans is 13 points. Among the remaining students, who did not consider graduation essential, the veterans had a mean AAG of 127; the nonveterans, of 115. Here the advantage of the veterans is 12 points. For all the veterans at Evans the mean AAG is 132; for all nonveterans, it is 122, a difference of 10 points. The advantage of veterans, then, would be slightly greater if veterans and nonveterans were matched with regard to response to this question. This result implies that a greater proportion of veterans than of nonveterans chose the less desirable response (graduation not absolutely necessary). In fact, 50 per cent of the veterans chose it; while only 39 per cent of the nonveterans did so. The factor measured by this item therefore would not help to account for the veteran superiority in AAG for members of this group. On the contrary, it would lead to the expectation of nonveteran superiority; if veterans prove to be superior, it is in spite of the factor measured by this item. Of course, this result is merely suggestive; similar results in other colleges would be needed to establish the relevance of the item.

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[7] Acknowledgement is made to Professor S. S. Wilks, who suggested in principle the procedure which was employed in analyzing the questionnaire data.

A hypothetical case in which the mean AAG's are identical when the response chosen is taken into account may also be useful. Suppose that a questionnaire item dealing with number of hours per week devoted to study is strongly related to Adjusted Average Grade, and that the mean AAG, for both veterans and nonveterans, of those who report studying less than fifteen hours a week is 120, and of those studying fifteen hours a week or more is 140. Such an item might account for superiority of veteran students in AAG, provided veterans tend to study more than nonveterans. The tabulations of frequency and mean AAG might, for example, be as follows:

Groups	Per Cent Choosing Each Item Category		Mean AAG	
	MV	MN	MV	MN
A. Studied less than 15 hours per week	25	75	120	120
B. Studied 15 or more hours per week	75	25	140	140
Total group	100	100	135	125

The fact that many more male veterans (MV) than male nonveterans (MN) in this hypothetical example report studying 15 or more hours and fewer veterans report studying fifteen hours or less per week results in a higher mean AAG for veterans than nonveterans: 135 as compared with 125 for nonveterans.

These findings may be plotted in a manner illustrated in Figure 11. The points A and B correspond to the means, plotted against each other, for the two item-categories. The point M represents the over-all means for veterans and nonveterans. The diagonal line is drawn through M at a forty-five degree angle; it is a line representing equal differences in AAG. Both points (A and B) are located below the diagonal, since the particular pattern of frequencies raised, in effect, the mean AAG for veterans. If the item had not been related to AAG or if there had been similarity between veterans and nonveterans in the frequencies of item categories chosen, the diagonal would have tended to pass through points A and B rather than above them.

In the sign test, then, the criterion for judging whether or not a questionnaire item helps to account for a veteran-nonveteran difference in mean AAG is the proportion of points having a minus sign, i.e., falling below the diagonal. Results for a number of the college groups are combined in making the test, in order that more stable results may be obtained.

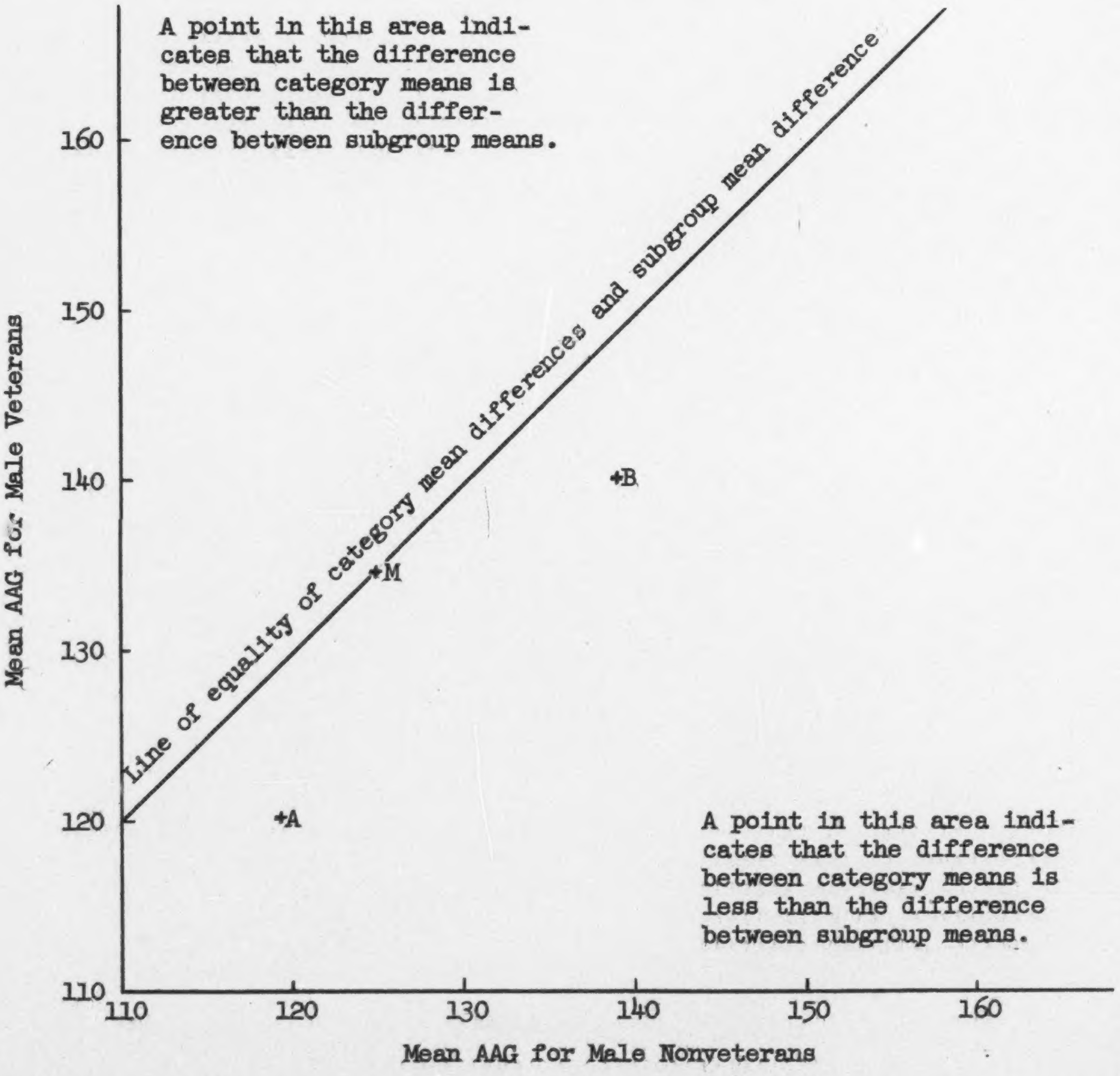

FIGURE 11. GRAPHIC EXAMPLE OF A SIGN TEST IN WHICH BOTH RESPONSES OF A TWO-CATEGORY ITEM FALL WITHIN THE AREA OF MINUS DIFFERENCES.

In applying this technique to determining whether each questionnaire item contributed to an understanding of veteran-nonveteran differences, twelve of the twenty-five groups were selected. These twelve groups are all limited to freshman students who entered in the fall of 1946. In all twelve groups, first-year college average grade is the criterion. Each of the twelve groups represents a different university. None of the twelve groups has fewer than 70 members in either the male veteran or the male nonveteran group; most of the groups are much larger than this minimum. Of these twelve "sign-test" colleges, six are private colleges, and six are public; nine are arts and science groups, while three are engineering groups.

It should be added that the technique for evaluating the statistical significance of an excess of signs has much more extensive application, being, in effect, an application of chi-square when the chance probability is 1/2. For example, if in a series of percentages obtained for the same response in 12 colleges, that for the veterans is higher in 11 of the 12 instances, one could conclude that the difference is reliable at the 1% level of significance.[8]

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[8] An extensive discussion of the sign test is given in: Dixon, W. J. and Mood, A. M. The statistical sign test. Journal of the American Statistical Association, 1946, 41, 557-566.

ADJUSTMENT TO COLLEGE

A STUDY OF 10,000 VETERAN AND NON-VETERAN STUDENTS IN 16 AMERICAN COLLEGES

Chapter III. The Academic Achievement of Veteran and Nonveteran Students.

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and

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Educational Testing Service

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Chapter III

THE ACADEMIC ADJUSTMENT OF VETERAN AND NONVETERAN STUDENTS

A primary objective of this study was to determine whether or not veteran students earn higher grades in college than nonveteran students of equal ability. To this end, a series of twenty-five separate, but related, comparisons of veteran and nonveteran students was carried out--one comparison for each of the twenty-five groups listed in Chapter II. In addition, a number of supplementary analyses were conducted to aid in the interpretation of the basic findings. The groups were studied separately so that each comparison would be based on veteran and nonveteran students who were as similar as possible with respect to such factors as college program, previous college training as a civilian, and educational environment while in college. (Age was not controlled directly in any of the studies, nor was educational experience during service in the armed forces except where this experience led to substantial credit in specific academic courses.)

In order to take account of ability differences in comparisons of veterans and nonveterans, it was necessary to define ability in terms of specific measures, such as scores on a test of scholastic aptitude. In every comparison the suitability of the measure of ability employed was evaluated through the use of an analysis of covariance method. This procedure minimized the likelihood that a predictor chosen for equalizing ability might introduce some bias into the comparison through its closer relationship with grades in one group than in the other. The procedure provided not only an estimate of the amount of difference between veterans and nonveterans, but also an estimate of the probability that a greater difference than the one obtained might have arisen by chance.

In selecting measures of ability for the purpose of the statistical analysis, the guiding principle was to seek comparability among the various analyses without attempting to force all the studies into an identical design. By permitting some flexibility, it was possible to take advantage of the more extensive data at some colleges for the light they might throw on certain special problems. At the same time, the predictors chosen for the final comparisons were considered to be sufficiently similar to permit general conclusions to be drawn from the series of separate analyses.

The choice of predictors within a fairly definite framework was also thought to be desirable in order to avoid the proliferation of studies which would have resulted if varying combinations of predictors were used, and to reduce the danger of capitalizing on chance variations resulting from numerous comparisons involving the same group. The type of predictor to be used was therefore designated in advance.

For the entering freshman groups, the usual team of predictors was some measure of high school standing used in combination with some test of scholastic aptitude. (In colleges where suitable data on high school standing were not available, test scores provided the only predictive measure.) For the groups which included interrupted veterans, grades earned during the freshman year (usually first-semester grades) were used as the predictor of later success.

In order to carry out the statistical analyses, it was necessary to select not only measures of ability (the predictors), but also a measure of college success (the criterion). The criterion chosen for the twenty groups of beginning students was ordinarily the freshman average grade. For the interrupted veterans and their nonveteran control groups, fourth-semester average grade was typically used as the criterion. In supplementary analyses, grades in specific courses were also employed. The average grades were generally obtained directly from the college records, although in a few cases they were computed from data appearing on transcripts with slight modifications in the system used by the college in computing averages.

In discussing the results of comparisons in the various groups studied, the following order will be followed: (a) students of arts and science in private universities; (b) students of arts and science in state and municipal universities; (c) students of engineering in state and municipal universities; (d) students of agriculture and of business in state and municipal universities; and (e) interrupted veterans and their uninterrupted nonveteran control groups. Within each of these main divisions, those groups upon which the more extensive analyses were done will generally be considered first.

Grades of Veteran and Nonveteran Students in Arts and Science Colleges of Private Universities

Adams University. In addition to the basic comparison of achievement relative to ability, certain other pertinent problems were studied at Adams for veterans and nonveterans: the interrelations among various predictors (including College Board test scores, date of taking tests for admission, and secondary school standing) and the validities of these predictors in relation to term grades.

Adams University is a large private university for men. All candidates for admission are required to present scores on College Entrance Examination Board tests, along with evidence regarding their secondary school achievement. For the 1946 group, about two-thirds of the entering students had attended private schools. Although specific courses are not required of freshmen, the selection of courses is limited, and all freshmen carry a uniform number of courses.

The group of students included in this study may be defined as follows: students who entered as beginning freshmen in the fall of 1946 and who completed a full year's work during the academic year, 1946-1947. The number of veterans in the group is 531; of nonveterans, 694. A few items of information obtained from group members who completed questionnaires may be relevant here: The veteran group in this analysis is relatively young (about 40 per cent were under twenty years of age at time of entrance), and the tour of active duty for the majority of them was comparatively short (only about 45 per cent had served two years or more). Only 3 per cent were married. About 95 per cent of them reported that they would have attended college without the aid given by the GI Bill. For veterans and nonveterans alike, 60 per cent of the group reported that their fathers were college graduates. Eighty per cent of veterans and about 95 per cent of nonveterans were living in the college dormitories.

The predictors used for Adams were the Verbal and Mathematical scores of the College Entrance Examination Board Scholastic Aptitude Test (SAT), the Adjusted School Rank, and a Predicted Grade, computed by the university, which is based on adjusted rank in school and College Board test scores. The adjustment of the rank in school is based on past records at Adams of students from each particular secondary school. The criterion measures are First-Semester and Second-Semester College Average Grade. Grades are "percentage" grades based on a 100-point scale. The date of taking College Board tests was included as still another variable. The intercorrelations of these variables are shown in Table 3.

"Date of Tests" was included in order to investigate the relationship of amount of time elapsing between testing and college entrance to measures of achievement in college. Many of the veterans had taken the College Board tests prior to war service, while practically all nonveterans took the tests in the spring just prior to entrance at Adams University. The mean date of testing for veterans was found to be between 1944 and 1945, with a standard deviation of 1.12 years. It is apparent that there is sufficient variation among the veterans to make the results of the analysis meaningful.

The correlations involving year of testing are all low; they range from -.08 to .21. The correlations with term averages are .03 and .06. The highest correlation (.21) is with the Verbal score of the Scholastic Aptitude Test. This positive relationship might be accounted for in terms of higher standards for admission in the more recent years; however, such an hypothesis is not borne out by the correlations with the SAT-Mathematical score and the Adjusted School Rank, which are -.02 and -.08 respectively. The slightly higher correlation with the SAT-Verbal score may merely reflect growth in vocabulary and other verbal abilities with age. By and large, it appears that date of taking the aptitude tests is a matter of little importance within the limits of age and time found in this study. This finding is of considerable significance in the interpretation of data in this investigation, since in most groups the veteran students were tested after war service, while nonveterans were tested soon after graduation from high school.

The correlation of First-Semester Average Grade with Second-Semester Average Grade is .81 for each of the subgroups. This value may be considered as an indication of the reliability of semester grades, although it is presumably an underestimate. The reliability of average grade for the freshman year may be estimated at .90 or higher, using the Spearman-Brown formula.

The veteran subgroup is seen to have obtained lower mean scores than the nonveteran subgroup on all the variables on which a comparison is possible. It is particularly interesting to note that the veterans were predicted to earn a mean average grade of about 72 and they actually earned a First-Semester Average Grade of 75.4, while the nonveterans were predicted to have a mean average grade of 74.8 and actually earned a First-Semester Average of 75.7, a somewhat smaller difference.

Table 3

INTERCORRELATIONS OF SCHOLASTIC APTITUDE TEST SCORES, DATE TESTS WERE TAKEN (FOR VETERANS ONLY), ADJUSTED SCHOOL RANK, PREDICTED GRADE, AND FIRST-YEAR COLLEGE AVERAGE GRADES

Adams University, College of Arts and Science, Freshmen, 1946-1947

		Male Nonveterans (N=694)									
		SAT-V	SAT-M	Date of Tests	Adjusted School Rank	Predicted Grade	1st-Sem. Average	2nd-Sem. Average	1st-Year Average	Mean	S. D.
Male Veterans (N=531)	SAT-Verbal		.17		.31	.65	.37	.37	.39	565	86
	SAT-Mathematical	.23			.33	.44	.32	.25	.30	594	80
	Date of Tests	.21	-.02								
	Adjusted School Rank	.29	.37	-.08		.82	.57	.57	.60	76.2	7.0
	Predicted Grade	.62	.46	.16	.76		.61	.62	.65	74.8	6.0
	1st-Semester Average	.41	.37	.03	.53	.61		.81		75.7	6.8
	2nd-Semester Average	.37	.26	.06	.50	.58	.81			75.8	6.6
	First-Year Average	.41	.33		.55	.63				75.8	6.4
	Mean	536	576	4.42	72.2	72.0	75.4	74.8	75.1		
	Standard Deviation	93	84	1.12	7.7	6.9	6.5	6.3	6.1		

It will be noted in Table 3 that the best single predictor, for both veterans and nonveterans, is the Predicted Grade, and that the Adjusted School Rank alone is nearly as good, especially for nonveterans. The Predicted Grade was tried as a variable for use in controlling ability in the analysis of covariance. It was found, however, when this variable was used, that the slopes of the regression lines were significantly different (that for nonveterans being steeper), so that the interpretation of the results of later steps would be doubtful. It was also found that the Adjusted School Rank was responsible for the different slopes. The greater slope of the regression of grades on Adjusted School Rank for nonveterans means, of course, that for a given increment in school rank there was on the average a greater increase in average grade for nonveterans than for veterans. One can only speculate as to the reason for this finding; but perhaps it is related to the nonintellectual factors which influenced high school achievement and which have somehow been modified in veterans during the years of military service. Since the College Board test scores, used alone, did not have significantly different slopes for veterans and nonveterans, they were chosen as the predictors to be held constant. It must be added that this choice resulted in some loss of predictive effectiveness.

Results pertaining to the analysis of covariance are shown in detail in Table 4. In the first section of the table (I) are shown the intercorrelations, means, and standard deviations for the variables selected. The criterion is First-Year College Average Grade. The correlations in this instance are seen to be very similar for veterans and nonveterans. The nonveterans obtained higher average scores for both the Verbal and Mathematical parts of the Scholastic Aptitude Test, and their freshman average grade was also slightly higher. Variability of test scores was slightly greater for veterans, as shown by larger standard deviations, but the nonveterans were slightly more variable with respect to average grades. Part II of Table 4 shows that the multiple correlations, based on the two SAT scores, are .48 and .46 for veterans and nonveterans respectively. For both subgroups combined, the multiple correlation is .47. In interpreting these correlations, it is important to remember that the tests were used in selection of the students.

Part III of the table presents the results of the three significance tests in the analysis of covariance. Differences in errors of estimate and slopes are not significant. The intercepts of the regression planes, also, are not significantly different; when ability (as measured by SAT scores) is made equivalent, the grades earned by veterans and nonveterans are too similar to warrant the conclusion that either group is superior.

Part IV of the table highlights the findings: The veterans have a slight advantage over nonveterans of equivalent ability; the advantage, expressed in Adams University grade units, is .36. (In terms of the mean grades shown in Part I of the table, the nonveterans have an advantage of .7.) The advantage of the veterans, expressed in standard error of estimate units, is only .06. Perhaps the most meaningful measure of the veteran students' advantage is the percentage of veterans found to exceed the average nonveteran in grades adjusted for ability differences; in the case of Adams, this turns out to be only 52. If there were no difference, this per cent would of course be 50. The difference, as noted above, is too small to be statistically significant.

Table 4

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Adams University, College of Arts and Science, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:			Mean	SD	N
		SAT-Verbal	SAT-Math.	First-Year Avg. Grade			
1. Scholastic Aptitude Test-Verbal	MV		.23	.41	536	93	531
	MN		.17	.39	565	86	694
2. Scholastic Aptitude Test-Mathematical	MV	.23		.33	576	84	531
	MN	.17		.30	594	80	694
3. First-Year College Average Grade	MV	.41	.33		75.1	6.1	531
	MN	.39	.30		75.8	6.4	694

II. Multiple Correlations (Variables 1 and 2 vs. Variable 3):

Sample	Multiple R
Male Veterans	.48
Male Nonveterans	.46
Combined Group	.47

III. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	2.008	1	Between .10 and .20
B. Equality of slopes	0.733	2	Between .50 and .70
C. Equality of intercepts	1.213	1	Between .20 and .30

IV. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.36
Advantage expressed in standard error of estimate units	0.06
Per cent of veterans excelling the average nonveteran	52
Level of significance of difference (from IIIC above)	Not significant

Stewart University. For the Stewart University students entering as freshmen in 1946, the analysis design was much like that for Adams. At Stewart, intercorrelations among College Board Scholastic Aptitude Test scores, Adjusted School Rank, date of taking admissions tests, and First-Year College Average Grades were obtained. In comparing the relative achievement of veteran and nonveteran male students, allowance was made for three predictors: Scholastic Aptitude Test-Verbal, Scholastic Aptitude Test-Mathematical, and Adjusted School Rank.

Stewart is a private institution for men, similar in many respects to Adams University. Students are required to present College Board scores, along with their secondary school records, for admission. As at Adams, the majority (about three-fourths) of the 1946 entering students had attended private schools. As freshmen, Stewart students select their program within a restricted framework.

The group of entering freshmen may be defined as follows: students who entered as beginning freshmen in the fall of 1946 and who completed a full year's work during the academic year, 1946-1947. There were 187 veteran and 348 nonveteran students. Since all students carry a fixed number of courses, it was not necessary to consider variations in academic load in defining the sample. Further information about this group, obtained from their questionnaires, may be summarized as follows: The veterans were young (about 55 per cent were not yet twenty when they entered college); the great majority had had relatively little active duty (slightly under 30 per cent had served two years or more); and none was married. Virtually all indicated that they probably would have come to college without GI Bill assistance. Sixty per cent of veterans and about 65 per cent of nonveterans reported that their fathers were college graduates. As at Adams, substantially all students (about 95 per cent of both veterans and nonveterans) were living in college dormitories.

The statistical results involved in the comparison of achievement of veteran and nonveteran students are presented in Table 5. The predictors again included the College Board SAT scores, both Verbal and Mathematical. Their predictive value was very nearly the same as at Adams. Adjusted School Rank was also used at Stewart, and its predictive value was high (r = .53 for veterans and .62 for nonveterans). At Stewart, the adjustment of the secondary school rank is made on the basis of former students from each particular secondary school.

The multiple correlations (based on all three predictors) were higher than for Adams because of the inclusion of the measure of high school achievement; the R was .60 for veterans, .66 for nonveterans, and .65 for both subgroups combined. As at Adams, the nonveteran students on the average had higher scores on all the predictors and also a higher First-Year Average Grade. The actual difference in mean grades is .31 on the grading system used at Stewart. Stewart uses a seven-step grading system; in this analysis, the highest grade was given the value 7, the next 6, and so on, 1 being the lowest.

Table 5

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Stewart University, College of Arts and Science, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:				Mean	SD	N
		SAT Verbal	SAT Math.	Adj. School Rank	1st-Yr. Average Grade			
1. Scholastic Aptitude Test-Verbal	MV		.21	.29	.40	536	86	187
	MN		.09	.31	.40	570	82	348
2. Scholastic Aptitude Test-Mathematical	MV	.21		.32	.28	570	77	187
	MN	.09		.37	.25	590	74	348
3. Adjusted School Rank	MV	.29	.32		.53	4.12	.76	187
	MN	.31	.37		.62	4.70	.78	348
4. First-Year College Average Grade	MV	.40	.28	.53		4.76	.77	187
	MN	.40	.25	.62		5.07	.83	348

II. Multiple Correlations (Variables 1, 2, and 3 vs. Variable 4):

Sample	Multiple R
Male Veterans	.60
Male Nonveterans	.66
Combined Group	.65

III. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.014	1	Between .90 and .95
B. Equality of slopes	3.375	3	Between .30 and .50
C. Equality of intercepts	2.143	1	Between .10 and .20

IV. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.09
Advantage expressed in standard error of estimate units	0.14
Per cent of veterans excelling the average nonveteran	56
Level of significance of difference (from IIIC above)	Not significant

The analysis of covariance results show that the hypotheses of equal errors of estimate and equal slopes of regression planes are not disproved. The difference between veteran and nonveteran students in intercepts of their regression planes is well within the range of chance expectancy. The advantage is, then, in favor of the veteran student at Stewart; but the advantage is only .09 grade units or .14 standard error of estimate units, when ability measures are taken into account. Fifty-six per cent of the veterans exceed the average nonveteran. The advantage of the veteran is again found not to be significant, when account is taken of differences in ability.

In addition to the variables directly involved in the analysis of covariance, attention was given to the year during which College Board tests were taken. The results for this variable were similar to those found at Adams. While practically all the nonveteran students were tested in 1946, the mean date of testing for veterans was midway between 1944 and 1945, with a standard deviation of one year. The correlations of year of testing with other variables ranged from .10 (with Adjusted School Rank) to -.04 (with SAT-M and First-Year Average Grade). The correlation with SAT-V was .07 at Stewart. The time of testing was again found to be a factor of negligible importance within the conditions of this study.

Douglas University. Several points not investigated in the first two analyses were included in the study at Douglas. In particular, data for a group of female nonveterans were analyzed. Douglas is the first of many groups for which American Council Psychological Examination scores were available; in this analysis, both part and total scores were studied. Year of High School Graduation and number of hours of credit were other variables of special interest included in the Douglas study.

Douglas University is a coeducational private university located in a southern city. The typical method of admission at Douglas depends primarily upon the student's secondary school record. In the 1946 group, about 45 per cent had attended private schools. Certain required courses are set up for freshmen in arts and science, required subjects being English, mathematics, and social science.

The group studied at Douglas met the following requirements: all entered as beginning freshmen in the fall of 1946, completed three full quarters during the academic year 1946-1947, and returned a questionnaire. (Very few students in this group failed to complete a questionnaire.) The resulting group included 77 male veterans, 119 male nonveterans, and 93 female nonveterans. From the questionnaires, the following characteristics were noted: The veterans were relatively young (about half were under age twenty at time of entrance); only about 40 per cent had had two or more years of active duty; and slightly under 10 per cent were married. Somewhat more than 90 per cent reported that they would probably have attended college without the aid of the GI Bill. When veterans were compared with the two nonveteran subgroups with respect to father's education, it turned out that slightly more than 20 per cent of the veterans' fathers had been graduated from college, as compared with slightly more than 40 per cent for the male nonveterans. The percentage for female nonveterans was slightly greater than for male nonveterans. The great majority of Douglas students (about 80 per cent of the veterans and 75 per cent of the nonveterans) live either at home or in one of the college dormitories. A much larger proportion of male veterans (60 per cent) than of male nonveterans (slightly over 30 per cent) reported that they lived at home or with near relatives.

The predictors used at Douglas included raw scores on the ACE Psychological Examination (Quantitative, Linguistic, and total score), an English Placement Test and a Mathematics Test administered to freshmen at Douglas, and High School Average Grade. The high school grade, which was expressed in letters, was converted into numerical form as follows: A = 8, A- = 7, B+ = 6, B = 5, B- = 4, etc. The Year of High School Graduation was also included, for veteran students only. Criterion measures included the First-Year College Average Grade, score on an English Achievement Test given near the end of the freshman year, and grades in the two freshman English courses. The grades were based on a four-category scale, the units of which had numerical values of 3 to 0. The number of First-Year College Credit hours for which students were registered was included as another variable.

The intercorrelations of the variables are shown in Tables 6 and 7. Comparison of the mean scores reveals that the women students were superior to both the other subgroups in measures of English aptitude and achievement, which is consistent with the sex difference usually found. On mathematical tests, they were definitely poorer than the male nonveterans and similar to the male veterans. The male veteran subgroup tended to be poorest on both predictor and criterion measures.

For the male subgroups, the best predictor of the First-Year Average Grade was High School Average Grade, while for the women students, the measures of verbal ability (ACPE total and L-scores and the English Placement Test) were the best predictors.

Year of High School Graduation was included as a variable for male veterans only, since practically all the nonveterans graduated from high school in 1946. The average veteran graduated from high school in 1944 (the last digit of the year of graduation was used as the variable), and there was considerable variability as indicated by the standard deviation of 1.7. Year of High School Graduation has essentially zero correlations with all the predictors except High School Average, where the correlation is -.18. This correlation indicates a very slight tendency for students who graduated most recently to have lower High School Averages. Such a relationship might easily have been the result of a tendency for admissions officers to admit the older veterans only if they had exceptionally good high school records, or of a self-selection process in the older veterans. Correlations with the measures of college achievement were also negative; the most recent high school graduates tended to make poorer grades. The highest correlation (-.28) is with the First-Year Average Grade, but the relationship also holds for the three measures of achievement in English.

Table 6

INTERCORRELATIONS OF TEST SCORES, HIGH SCHOOL AVERAGE, YEAR OF HIGH SCHOOL GRADUATION (FOR VETERANS ONLY), COLLEGE CREDIT HOURS, AND FIRST-YEAR COLLEGE GRADES

Douglas University, College of Arts and Science, Male Freshmen, 1946-1947

		Male Nonveterans (N=119)													
		ACPE-Q	ACPE-L	ACPE-T	Engl. Plmt.	Math. Test	H. S. Yr.	H. S. Avg.	1st-Yr. Cr.	1st-Yr. Avg.	Engl. Ach.	Engl. 101A	Engl. 101B	Mean	S. D.
Male Veterans (N=77)	ACPE-Quantitative (raw score)		.49	.81	.43	.47		.16	.08	.34	.31	.27	.30	47	9.4
	ACPE-Linguistic (raw score)	.45		.89	.54	.39		.37	.20	.55	.41	.51	.45	70	13.9
	ACPE-Total (raw score)	.77	.90		.56	.49		.32	.16	.55	.42	.49	.45	117	19.9
	English Placement Test	.42	.53	.55		.56		.40	.45	.53	.72	.55	.52	5.46	1.83
	Mathematics Test	.51	.39	.49	.55			.49	.44	.59	.58	.45	.41	27.4	8.0
	Year of High School Graduation	.07	-.08	-.06	.00	-.07									
	High School Average Grade	.02	.19	.13	.36	.36	-.18		.28	.65	.46	.51	.45	4.07	2.30
	First-Year College Credits	.17	.06	.11	.32	.50	.02	.17		.34	.33	.27	.23	49.2	2.7
	First-Year College Average	.18	.39	.35	.47	.47	-.28	.52	.29		.58	.70	.67	1.40	.75
	English Achievement Test	.33	.47	.47	.73	.49	-.22	.43	.35	.55		.56	.54	6.69	1.46
	English 101A Grade	.26	.50	.46	.48	.43	-.12	.40	.31	.67	.62		.66	3.29	1.00
	English 101B Grade	.30	.44	.42	.44	.27	-.12	.40	.13	.62	.50	.57		3.53	.98
	Mean	42	64	106	4.13	20.3	43.9	3.26	47.1	1.14	5.60	2.94	3.38		
	Standard Deviation	9	13	19	2.00	7.9	1.7	2.04	3.8	.64	1.61	.87	.81		

Table 7

INTERCORRELATIONS OF TEST SCORES, HIGH SCHOOL AVERAGE, COLLEGE CREDIT HOURS, AND FIRST-YEAR COLLEGE GRADES

Douglas University, College of Arts and Science, Female Freshmen, 1946-1947

	Female Nonveterans (N=93)												
	ACPE-Q	ACPE-L	ACPE-T	Engl. Plmt.	Math. Test	H. S. Avg.	1st-Yr. Cr.	1st-Yr. Avg.	Engl. Ach.	Engl. 101A	Engl. 101B	Mean	S. D.
ACPE-Quantitative (raw score)		.56	.80	.56	.58	.20	.37	.38	.52	.49	.35	41	8
ACPE-Linguistic (raw score)			.93	.57	.45	.17	.24	.51	.53	.53	.54	70	14
ACPE-Total (raw score)				.62	.55	.20	.32	.51	.57	.58	.52	111	20
English Placement Test					.47	.41	.15	.54	.56	.62	.47	6.42	1.57
Mathematics Test						.34	.61	.39	.38	.38	.34	22.2	8.0
High School Average Grade							.31	.46	.33	.30	.27	5.34	1.97
First-Year College Credits								.14	.19	.08	.09	48.1	2.5
First-Year College Average Grade									.48	.68	.66	1.57	.61
English Achievement Test										.46	.42	7.13	1.55
English 101A Grade											.69	3.84	.87
English 101B Grade												3.97	.71

Number of hours credit correlates positively with all other measures for all three subgroups, indicating a tendency for the better students to take the heavier loads. The correlation is especially high with the Mathematics Test in all three groups. The heaviest course load is taken by the male nonveterans and the lowest by the male veterans; the biggest mean difference amounts to two credit hours.

Three analyses of covariance were computed. The results of the first, comparing veteran and nonveteran male students, are shown in Table 8. The correlations, means, and standard deviations for the criterion and the selected predictors are taken from the more complete table of intercorrelations. The American Council Psychological Examination total score and High School Average Grade were chosen as predictors. The multiple correlations were found to be .59 and .74 for veterans and nonveterans respectively, and .71 for both subgroups combined. The higher validities for nonveterans is undoubtedly due in part to their greater variability.

Differences in errors of estimate and slopes of the regression planes were found to be no greater than would be expected by chance, and the difference in intercepts of the regression planes was also not significant. When account is taken of differences between the subgroups in ability, the mean difference in freshman average grade is only .02 (in favor of the veterans) as compared with a difference of .26 (in favor of the nonveterans) when no adjustment is made. In standard error of estimate units, the difference is .04; 52 per cent of the veterans excel the average nonveteran.

The analysis of covariance results for the male-female nonveteran comparison, shown in Table 9, also shows negative results. The hypotheses of equality of errors of estimate, slopes, and intercepts are not disproved. Female nonveterans are found to excel the male nonveterans by .06 grade units, when ability is considered, a difference which is not significant. Only 46 per cent of the male nonveterans excelled the average female nonveteran.

The third analysis, the results of which are shown in Table 10, involves the comparison of male veterans and female nonveteran students. Again the three hypotheses are not disproved. The female students were found to earn better grades, in relation to ability, than the male veterans, the difference being .09 grade units. Forty-three per cent of the male veterans excelled the average female student, a difference which is not significant.

Harris University. The analysis of data for students in Harris University was limited to that necessary for a comparison of relative achievement of veteran and nonveteran students after allowing for differences in high school standing and a composite score based on five entrance tests.

Harris is a coeducational private midwestern college of arts and science which is bound by ties of tradition to one of the major religious denominations. Harris students are drawn from the upper half of their high school graduating classes. Freshmen choose their own program within a series of general requirements, only English being specifically required.

Table 8

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Douglas University, College of Arts and Science, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:			Mean	SD	N
		ACPE	H. S. Average Grade	1st-Yr. Average Grade			
1. ACPE Total (raw score)	MV		.13	.35	106	19	77
	MN		.32	.55	117	20	119
2. High School Average Grade	MV	.13		.52	3.26	2.04	77
	MN	.32		.65	4.07	2.30	119
3. First-Year College Average Grade	MV	.35	.52		1.14	.64	77
	MN	.55	.65		1.40	.75	119

II. Multiple Correlations (Variables 1 and 2 vs. Variable 3):

Sample	Multiple R
Male Veterans	.59
Male Nonveterans	.74
Combined Group	.71

III. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.0506	1	Between .80 and .90
B. Equality of slopes	2.048	2	Between .30 and .50
C. Equality of intercepts	0.0587	1	Between .80 and .90

IV. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.02
Advantage expressed in standard error of estimate units	0.04
Per cent of veterans exceeding the average nonveteran	52
Level of significance of difference (from IIIC above)	Not significant

Table 9

COMPARISON OF AVERAGE GRADES EARNED BY MALE NONVETERANS AND FEMALE NONVETERANS

Douglas University, College of Arts and Science, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:			Mean	SD	N
		ACPE	H. S. Average Grade	1st-Yr. Average Grade			
1. ACPE Total (raw score)	MN		.32	.55	117	20	119
	FN		.20	.51	111	20	93
2. High School Average Grade	MN	.32		.65	4.07	2.30	119
	FN	.20		.46	5.34	1.97	93
3. First-Year College Average Grade	MN	.55	.65		1.40	.75	119
	FN	.51	.46		1.57	.61	93

II. Multiple Correlations (Variables 1 and 2 vs. Variable 3):

Sample	Multiple R
Male Nonveterans	.74
Female Nonveterans	.63
Combined Group	.70

III. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.275	1	Between .50 and .70
B. Equality of slopes	3.246	2	Between .10 and .20
C. Equality of intercepts	0.596	1	Between .30 and .50

IV. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Female Nonveteran
Advantage expressed in grade units	0.06
Advantage expressed in standard error of estimate units	0.11
Per cent of male nonveterans excelling the average female nonveteran	46
Level of significance of difference (from IIIC above)	Not significant

Table 10

COMPARISON OF AVERAGE GRADES EARNED BY MALE VETERANS AND FEMALE NONVETERANS

Douglas University, College of Arts and Science, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:			Mean	SD	N
		ACPE	H. S. Average Grade	1st-Yr. Average Grade			
1. ACPE Total (raw score)	MV FN		.13 .20	.35 .51	106 111	19 20	77 93
2. High School Average Grade	MV FN	.13 .20		.52 .46	3.26 5.34	2,04 1.97	77 93
3. First-Year College Average Grade	MV FN	.35 .51	.52 .46		1.14 1.57	.64 .61	77 93

II. Multiple Correlations (Variables 1 and 2 vs. Variable 3):

Sample	Multiple R
Male Veterans	.59
Female Nonveterans	.63
Combined Group	.66

III. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.479	1	Between .30 and .50
B. Equality of slopes	1.347	2	Between .20 and .30
C. Equality of intercepts	0.990	1	Between .30 and .50

IV. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Female Nonveteran
Advantage expressed in grade units	0.09
Advantage expressed in standard error of estimate units	0.17
Per cent of male veterans excelling the average female nonveteran	43
Level of significance of difference (from IIIC above)	Not significant

For study at Harris University, the following group of students was selected: students who entered as beginning freshmen in the fall of 1946, who completed substantially a full year's work during the academic year, 1946-1947, and who returned a questionnaire. Students who received ten or more hours of credit in specific subjects for training received in the armed services were judged not to be "beginning students," and students who carried ten or fewer credit hours in any term were judged not to have completed a full year's work; both of these groups were excluded. It may be added that virtually all students completed questionnaires, so that this was not an important cause of rejection of students from the analysis. The group selected for study included 105 veteran and 146 nonveteran students.

From the questionnaires, the following points may be added to the description of the group: Only about 30 per cent of the group of veterans were under twenty years of age upon entrance to college; slightly under 60 per cent served two or more years of active duty; and just under 10 per cent of the veterans were married. Almost 90 per cent would probably have attended college without the GI Bill. With respect to father's education, the picture is somewhat similar to that at Douglas: slightly over 20 per cent of the veterans and about 35 per cent of the male nonveterans reported that their fathers had been graduated from college. A little more than half of the male veteran and male nonveteran students were living in fraternity houses; Harris is the only college included in the study where the fraternity house was the predominant living arrangement.

The predictors used at Harris included High School Rank and a Composite Test score. (High School Rank was converted to a standard score scale having a mean of 13 and a standard deviation of 4.) The composite score, which is computed routinely at Harris, is based on the American Council Psychological Examination (1942 edition) and four Form T Cooperative tests: the Cooperative English Test (consisting of Mechanics of Expression, Effectiveness of Expression and Reading Comprehension) and the three Cooperative General Achievement Tests in social studies, natural sciences and mathematics. The composite score was obtained by adding to the ACPE total score twice the sum of the scaled scores on the four achievement tests, after both the ACPE total and the sum of the scaled scores had been converted to standard scores based on local norms. The criterion as usual is the First-Year College Average Grade. A six-step grading system is used at Harris; in this analysis, the numerical equivalents of the steps were 3, 2, 1, 0, -1, and -2.

The results of the analysis are shown in Table 11. The nonveterans at Harris proved to be superior on the average to veterans on both predictor measures and also with respect to freshman average grade. Validity coefficients are satisfactorily high. The greater validity of High School Rank for nonveterans may be due in part to the greater variability of nonveterans on this measure. The multiple correlations, based on both the Composite Test score and High School Rank, were .61 and .68 for veterans and nonveterans respectively, and for both subgroups combined it was .65.

The analysis of covariance results show that the hypotheses of equality of errors of estimate and equality of slopes of regression planes are not disproved, and that the difference between the intercepts of the generalized

Table 11

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Harris University, College of Arts and Science, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:			Mean	SD	N
		Composite Test	H. S. Rank	First-Year Avg. Grade			
1. Composite Test	MV		.46	.55	164	28	105
	MN		.54	.52	175	32	146
2. High School Rank (converted score)	MV	.46		.49	15.0	3.0	105
	MN	.54		.65	17.2	3.4	146
3. First-Year College Average Grade	MV	.55	.49		1.20	.72	105
	MN	.52	.65		1.43	.71	146

II. Multiple Correlations (Variables 1 and 2 vs. Variable 3):

Sample	Multiple R
Male Veterans	.61
Male Nonveterans	.68
Combined Group	.65

III. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.901	1	Between .30 and .50
B. Equality of slopes	4.024	2	Between .10 and .20
C. Equality of intercepts	0.676	1	Between .30 and .50

IV. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.06
Advantage expressed in standard error of estimate units	0.11
Per cent of veterans excelling the average nonveteran	54
Level of significance of difference (from IIIC above)	Not significant

regression planes is not significant. The veteran subgroup is slightly superior. Although the nonveterans achieve a raw mean average grade which is .23 higher than for veterans, the difference becomes .06 in favor of the veterans when the influence of the ability measures is taken into account. In error of estimate units, the advantage of veterans is only .11. Fifty-four per cent of the veterans exceed the average nonveteran with respect to freshman average grade at Harris. The advantage of veterans is clearly not significant.

Miller University. As at Harris, the analysis of the academic data at Miller was limited to that required for comparing the relative achievement of male veteran and nonveteran students. The predictors employed were the American Council Psychological Examination total score and High School Rank. The criterion was First-Year College Average Grade.

Miller is a large coeducational private university located in an eastern city. Students in the College of Arts and Science are typically drawn from the upper three-fifths of graduating classes of accredited high schools. The only course required of all freshmen is English; as usual, however, the formulation of the student's program is determined in part by broader requirements.

The group selected for study may be defined as follows: students who entered as beginning freshmen in the fall of 1946, who completed a full year of work (eleven or more hours each semester) during the academic year 1946-1947, and (since questionnaire returns were satisfactory) who returned a questionnaire. Because one of the variables included in the analysis was score on the 1946 edition of the American Council Psychological Examination, a few students who had taken the 1945 edition were excluded. Further information about the group was obtained from the questionnaires, as follows: Veterans at Miller tended to be somewhat older than those in other arts and science groups entering in 1946 (only about 15 per cent were under twenty years of age at time of entrance); they also had served a longer period of active duty (about 75 per cent had served two years or more); and roughly 15 per cent were married. Sixty-five per cent of the group judged that they would probably have attended college without the GI Bill. With respect to father's education, slightly more than 10 per cent of male veterans reported that their fathers were college graduates; for the male nonveterans the percentage was 20. The majority of students in this group lived at home or with near relatives; 70 per cent of the male veterans and slightly over 80 per cent of the male nonveterans were doing so. It may also be noted that about 10 per cent of the veterans in this group rented or owned their own house or apartment; among the groups previously described, only Douglas--with slightly under 10 per cent--has more than a small proportion in this category.

Results of the analysis of data for Miller students are shown in Table 12. In interpreting means and standard deviations, the following information may be useful: The grading system at Miller is based on a five-step scale; the numerical equivalents of the categories range from 3 through 0 to -1. For use in statistical analysis, High School Rank was converted to a standard scale having a mean of 13 and a standard deviation of 4.

Table 12

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Miller University, College of Arts and Science, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:			Mean	SD	N
		ACPE	H.S. Rank	1st-Yr. Average Grade			
1. ACPE (1946) Total (raw score)	MV		.26	.41	111	20	425
	MN		.32	.39	112	20	193
2. High School Rank (converted score)	MV	.26		.43	14.8	3.3	425
	MN	.32		.58	15.8	3.4	193
3. First-Year College Average Grade	MV	.41	.43		1.49	.56	425
	MN	.39	.58		1.50	.64	193

II. Multiple Correlations (Variables 1 and 2 vs. Variable 3):

Sample	Multiple R
Male Veterans	.53
Male Nonveterans	.62
Combined Group	.56

III. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	1.136	1	Between .20 and .30
B. Equality of slopes	7.027	2	Between .02 and .05
C. Equality of intercepts	2.732	1	Between .20 and .30

IV. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.07
Advantage expressed in standard error of estimate units	0.14
Per cent of veterans excelling the average nonveteran	56
Level of significance of difference (from IIIC above)	Not significant

Veteran and nonveteran students at Miller University have almost exactly the same mean First-Year Average Grade. Their average raw scores on the ACPE are almost identical, but with respect to High School Rank the nonveterans are slightly superior.

Veteran students proved to be somewhat less predictable than nonveterans in terms of the multiple correlations, where are .53 and .62 respectively. The difference is due to the greater predictive value of high school standing for nonveterans, which is characteristic in some degree of almost all the groups studied where a measure of high school standing was available. Errors of estimate were not significantly different. The slopes, however, were significantly different at the 5% level. It was judged that a difference in slopes significant at this level did not preclude continuing the analysis of covariance, particularly in view of the relatively large size of the group at Miller. The difference in intercepts between the groups turned out not to be significant.

Male veterans tend to excel nonveteran students of equivalent ability, the difference in grade units, however, being only .07. In standard error of estimate units, the difference is .14. Fifty-six per cent of the veteran subgroup exceed the average nonveteran; the difference is not significant. The difference in slopes of the regression planes, however, casts some doubt on the accuracy of the evaluation of the difference in intercepts.

Evans University. For students entering Evans University as freshmen, the comparison of achievement between veterans and nonveterans was carried out using only a single predictor--total score of the American Council Psychological Examination--as a basis for equating aptitude. The criterion, as usual, was First-Year College Average Grade.

Evans is a coeducational, private, church-connected college of arts and science located in a midwestern city. Admission is based typically upon the high school record of the student. At Evans, English is a required subject; the remaining requirements in the freshman program allow some choice of subjects.

The group chosen for analysis at Evans was limited to students entering as beginning freshmen in the fall of 1946 who completed two semesters of eleven or more hours each during the academic year 1946-1947, and who completed a questionnaire. Veteran students who received nine or more credit hours in specific subjects for college training during military service were considered not to be "beginning students" and were excluded. The veteran subgroup comprised 283 students, and the number of nonveterans was 94. Questionnaire responses provided the following additional information about the Evans group chosen for study: Like the Miller group, the Evans veteran group was relatively old (only about 20 per cent were under twenty years of age); almost 70 per cent of the veterans had completed two years or more of active duty; and close to 20 per cent were married. As at Miller, slightly under 70 per cent indicated that they would probably have attended college without the aid provided by the GI Bill. Ten per cent of the male veterans and just under 20 per cent of the nonveterans indicated that their fathers were college graduates. Finally, these Evans students generally lived at home or with near relatives; slightly under 60 per cent of veterans and about 70 per cent of male nonveterans used this arrangement. About 25 per cent of veterans lived in a rooming or boarding house, and approximately 10 per cent owned or rented their own house or apartment.

The results of the analysis are shown in Table 13. At Evans University, only one predictor was used, the total score on the American Council Psychological Examination. A measure of high school standing was not used because data were not available for a sufficiently large proportion of the group. The ACPE proved to have a fairly good predictive value at Evans. The nonveterans were slightly superior in ACPE score, while the veterans earned First-Year Average Grades which were slightly higher than those of nonveterans. The superiority of the veteran group was found to amount to .15 in grade units (.28 in standard error of estimate units), when account is taken of the difference in ability. The percentage of veterans exceeding the average nonveteran was found to be 61; this advantage of the veterans is significant at the 2% level.

Taylor University. At least two special features characterize the analysis of data for freshmen at Taylor University: first, the average grades are based on achievement test scores used by the college rather than on the course grades; and second, students entering in the fall of 1945 have been combined with those entering in the fall of 1946 in making up the group. The inclusion of both years was necessary in order to obtain a group of sufficient size. One hundred veteran and 101 nonveteran students were included.

Taylor University is a private coeducational university located in a large midwestern city. In addition to the student's high school record, a special battery of tests is used in the admissions procedure. The customary departmental divisions are minimized in the freshman program of Taylor students.

Students who entered as beginning freshmen in the fall of 1945 or in the fall of 1946, and who had data on three comprehensive examinations taken during the first year--including one in physical or biological science and one in another typical freshman course--constituted the group for analysis. Further information derived from questionnaire responses includes the following: The veteran group had longer service (almost 90 per cent served two years or more) than any of the groups previously discussed. Twenty per cent of the veteran group were married. Somewhat more than 60 per cent would have attended college without the aid provided by the GI Bill of Rights. Almost 20 per cent of the veterans and slightly over 30 per cent of the male nonveterans reported that their fathers had completed college. Just under 80 per cent of male nonveterans lived at home or in college dormitories, as compared with approximately 50 per cent for the male veterans. Roughly 20 per cent of male veterans reported owning or renting their own house or apartment. (Age of veterans is not reported for Taylor, since the method of determining age at entrance is not adapted to groups whose members did not enter at a fixed time.)

High school rank was not available for a sufficiently high proportion of the students to justify its use as a predictor. The predictor which was chosen proved to be a rather good one, however. It is a Composite Test score

Table 13

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Evans University, College of Arts and Science, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:		Mean	SD	N
		ACPE	First-Year Avg. Grade			
ACPE Total (converted score)	MV MN		.51 .45	12.0 13.1	3.3 3.1	283 94
First-Year College Average Grade	MV MN	.51 .45		2.10 2.05	.61 .60	283 94

Validity coefficient for combined group: .49

II. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.0285	1	Between .80 and .90
B. Equality of slopes	0.148	1	Between .70 and .80
C. Equality of intercepts	5.504	1	Between .01 and .02

III. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.15
Advantage expressed in standard error of estimate units	0.28
Per cent of veterans excelling the average nonveteran	61
Level of significance of difference (from IIC above)	2%

based on the American Council Psychological Examination total score, a test of reading comprehension, and a test of writing skills, the last two tests having been prepared at Taylor. As shown in Table 14, the validity of this Composite Test score was .61 for the group as a whole, and for veterans and nonveterans respectively the validity coefficients were .61 and .60. The nonveteran subgroup was superior on both the Composite Test score and the criterion, First-Year College Average Grade. Standard deviations of both measures were larger for nonveterans.

It was found through the analysis of covariance that the difference in standard errors of estimate was significant at the 5% level: the grades of veterans were somewhat more predictable than those of nonveterans. This finding casts some doubt on the legitimacy of testing the other two hypotheses concerning the regression lines. The remaining two tests were carried out; their results must be interpreted with caution. It was found that the slopes were not significantly different and that the difference in intercepts was not significant.

Taylor is the first institution so far encountered where the nonveteran students are superior to veteran students. Their advantage in average grade is .26 in grade point units when differences in ability are not considered; taking into account the difference in Composite Test score, the grade difference is reduced to .16. Only 39 per cent of the veterans at Taylor exceed the average nonveteran. It should be kept in mind that the results based on adjusted grades must be discounted somewhat in view of the rejection of Hypothesis A; it is believed, however, that the tendency for nonveterans to excel the veterans is a valid finding for the present data.

Summary. Summarizing the results for the private institutions, it is found that the superior subgroup in six instances is the male veteran and in only one instance the male nonveteran subgroup. The difference favoring veterans is significant at the 2% level for one group; none of the other differences is significant.

The validity coefficients obtained for tests of ability are in general very similar for veterans and nonveterans; but for measures based on high school standing, the predictive value is consistently greater for the nonveteran subgroups. This finding appears to be reasonable in the light of the greater time elapsing between high school graduation and college entrance for veterans than for nonveterans, permitting greater opportunity for change in motivation, interests, efficiency of work habits, etc. Evidence from Adams and Stewart, where there was considerable variation in the time of taking tests, indicates that the time of testing has little effect on the predictive value of the tests and little relationship to the predictive measures.

Table 14

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Taylor University, College of Arts and Science
(Students who entered as freshmen in fall, 1945, or fall, 1946)

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with: Composite Test	Correlation with: First-Year Avg. Grade	Mean	SD	N
Composite Test (converted score)	MV		.61	66.3	7.3	100
	MN		.60	68.1	8.0	101
First-Year College Average Grade	MV	.61		2.47	.66	100
	MN	.60		2.73	.81	101

Validity coefficient for combined group: .61

II. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	4.5403	1	Between .02 and .05
B. Equality of slopes	0.2406	1	Between .50 and .70
C. Equality of intercepts	3.7527	1	Between .05 and .10

III. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Nonveteran
Advantage expressed in grade units	0.16
Advantage expressed in standard error of estimate units	0.28
Per cent of veterans excelling the average nonveteran	39
Level of significance of difference (from IIC above)	Not significant

Grades of Veteran and Nonveteran Students in Arts and Science Colleges of State and Municipal Universities

Western State University. At Western State a fairly complete analysis of the available data was carried out. As at Douglas, a female subgroup was included. (At Western State, however, 16 female veterans were included in the 482 members of this subgroup.) Predictors studied included part and total scores on the American Council Psychological Examination, and High School Average Grade; criterion measures were the average grades earned during each quarter and during the entire college freshman year. In the comparison of veterans with the nonveteran males and with the female group, First-Year College Average Grade was the criterion measure, as usual; the predictors were High School Average Grade and ACPE total score.

Western State University is a large coeducational institution. The typical within-state student is admitted primarily on the basis of his high school record, the basic standard being an average grade of "C" or higher. As a freshman in the college of arts and science, he is required to take English; otherwise, his program is determined by broader requirements.

The group included in the analysis may be defined as follows: students who entered in the fall of 1946 as beginning freshmen and who completed ten or more quarter hours of work during each of the three quarters. Students who were not enrolled in freshman English during any of the three quarters were excluded in order to increase the homogeneity of the group. The group included 433 veteran and 222 male nonveteran students. The following additional features of the group were determined from the questionnaires: About 25 per cent of the male veteran group were under twenty years of age upon entrance; almost 65 per cent had two years or more of active duty; and about 15 per cent were married. Slightly over 80 per cent of the veterans would probably have attended college without the GI Bill. Among the male veterans, less than 20 per cent reported that their fathers had completed college; among male nonveterans the percentage was slightly higher; and among females, it was about 25 per cent. With respect to housing, about 50 per cent of the male veterans lived at home or with near relatives, and a little over 10 per cent said they owned or rented their own house or apartment. Slightly less than 70 per cent of the male nonveterans and 60 per cent of the females were living at home or with relatives.

Intercorrelations were computed for each of the three subgroups, based on a larger number of variables than were used in the analysis of covariance; the results are shown in Tables 15 and 16. Average grades were reported on a five-step scale, the numerical values being 4 to 0. The three sets of intercorrelations show that the validity coefficients for the Q, L, and total scores on the ACPE are rather similar for the three subgroups, although the male nonveterans appear to be slightly more predictable on the basis of the total score. The validity of high school standing as usual is higher for nonveterans than for veterans; but the highest coefficient (.62) is obtained for the women students. Contrary to the findings at Douglas University, where the verbal tests gave the best prediction of freshman grade for women, the best predictor of women's grades at Western State is the High School Average.

Table 15

INTERCORRELATIONS OF AMERICAN COUNCIL PSYCHOLOGICAL EXAMINATION SCORES, HIGH SCHOOL AVERAGE, AND FIRST-YEAR COLLEGE AVERAGE GRADES

Western State University, College of Arts and Science, Male Freshmen, 1946-1947

		Male Nonveterans (N=222)									
		ACPE-Q	ACPE-L	ACPE-T	High School Average	1st-Quarter Average	2nd-Quarter Average	3rd-Quarter Average	1st-Year Average	Mean	S. D.
Male Veterans (N=433)	ACPE-Quantitative (raw score)		.44	.74	.38	.32	.24	.30	.32	45	10
	ACPE-Linguistic (raw score)	.45		.89	.39	.47	.37	.42	.48	69	15
	ACPE-Total (raw score)	.77	.90		.47	.48	.39	.45	.51	114	21
	High School Average	.29	.32	.36		.57	.48	.51	.59	2.93	.51
	1st-Quarter College Average	.25	.42	.41	.46		.66	.62	.85	2.44	.60
	2nd-Quarter College Average	.27	.40	.40	.46	.61		.63	.88	2.41	.65
	3rd-Quarter College Average	.27	.38	.39	.45	.57	.65		.87	2.43	.66
	First-Year College Average	.31	.46	.46	.53	.82	.88	.85		2.43	.56
	Mean	43	71	114	2.69	2.38	2.38	2.42	2.39		
	Standard Deviation	10	15	22	.50	.68	.72	.71	.62		

Table 16

INTERCORRELATIONS OF AMERICAN COUNCIL PSYCHOLOGICAL EXAMINATION SCORES, HIGH SCHOOL AVERAGE, AND FIRST-YEAR COLLEGE AVERAGE GRADES

Western State University, College of Arts and Science, Female Freshmen, 1946-1947

	Female Students (N=482)*									
	ACPE-Q	ACPE-L	ACPE-T	High School Average	1st-Quarter Average	2nd-Quarter Average	3rd-Quarter Average	1st-Year Average	Mean	S. D.
ACPE-Quantitative (raw score)		.51	.80	.33	.36	.23	.29	.33	39	10
ACPE-Linguistic (raw score)			.90	.44	.42	.38	.34	.45	67	15
ACPE-Total (raw score)				.46	.45	.36	.36	.45	106	22
High School Average					.56	.53	.49	.62	3.08	.49
1st-Quarter College Average						.60	.54	.82	2.46	.59
2nd-Quarter College Average							.58	.84	2.47	.58
3rd-Quarter College Average								.82	2.47	.60
First-Year College Average									2.46	.50

*Includes 16 female veterans.

A rough estimate of the reliability of quarter average grades is furnished by the intercorrelations of the quarter averages. These values range from .54 to .66. Assuming that the reliability of the quarter average grades is .60, use of the Spearman-Brown formula would suggest that the reliability of the freshman average grade variable is about .82. These values are probably underestimates as compared with the hypothetical split-half reliability.

With regard to mean aptitude scores, it is found that the ACPE means are almost identical for veteran and nonveteran male students, but lower for female students, especially on the Quantitative score. The female students on the other hand have the best high school standing, the male veterans being poorest. The same rank order prevails with regard to all the mean average grades, although the differences are slight.

The analysis of covariance results for the male veteran-male nonveteran comparison is shown in Table 17. The ACPE total score and High School Average Grade were selected as the predictors; the correlations, means, and standard deviations are taken from Table 15. The multiple correlations are .60 and .65 for the two subgroups and .61 for both combined.

Turning to the analysis of covariance results under III, we see that the standard errors of estimate are significantly different at the 2% level. Strictly speaking the slopes are therefore not comparable. The test becomes fairly sensitive, however, with a group as large as that employed in this analysis; so it was considered permissible to proceed to the test of Hypothesis B that the slopes are not significantly different, but the intercepts of the regression planes are significantly different at the 5% level. The raw difference in mean freshman grade is .04 in favor of the nonveteran; when allowance is made for the difference in ability, the difference is .09 in favor of the male veteran student. This is equivalent to .18 in standard error of estimate units, from which we find that 57 per cent of the veterans excel the average nonveteran. It may be concluded that the grades of veteran students are less predictable than those of male nonveterans; the difference in errors of estimate is significant at the 2% level. The grades of the veterans are more variable than those of nonveterans, perhaps because of greater heterogeneity with regard to courses chosen by veteran students. The findings with regard to superiority in grades relative to ability are ambiguous.

Two additional analyses of covariance, comparing male nonveterans with female students and male veterans with female students, are possible from these data. Table 18 shows the results for the first of these comparisons.

In spite of the identical multiple correlations (.65), the hypothesis of equal errors of estimate is disproved at the 5% level of significance; the error in prediction is greater for the male students. The inequality is apparently due to the difference in variability of freshman average grades (the standard deviations are .56 and .50); the test becomes quite sensitive with large N's. The slopes of the regression lines are not proved to be different, nor is the difference in intercepts greater than would be expected by chance. When allowance is made for differences in ability, the male nonveterans and women achieve grades which are almost exactly the same. This is consist-

Table 17

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Western State University, College of Arts and Science, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with: ACPE	Correlation with: H. S. Average Grade	Correlation with: 1st-Yr. Average Grade	Mean	SD	N
1. ACPE Total	MV		.36	.46	114	22	433
(raw score)	MN		.47	.51	114	21	222
2. High School	MV	.36		.53	2.69	.50	433
Average Grade	MN	.47		.59	2.93	.51	222
3. First-Year College	MV	.46	.53		2.39	.62	433
Average Grade	MN	.51	.59		2.43	.56	222

II. Multiple Correlations (Variables 1 and 2 vs. Variable 3):

Sample	Multiple R
Male Veterans	.60
Male Nonveterans	.65
Combined Group	.61

III. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	6.0537	1	Between .01 and .02
B. Equality of slopes	0.3921	2	Between .80 and .90
C. Equality of intercepts	4.5398	1	Between .02 and 05

IV. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.09
Advantage expressed in standard error of estimate units	0.18
Per cent of veterans excelling the average nonveteran	57
Level of significance of difference (from IIIC above)	Ambiguous

Table 18

COMPARISON OF AVERAGE GRADES EARNED BY MALE NONVETERAN AND FEMALE STUDENTS

Western State University, College of Arts and Science, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:			Mean	SD	N
		ACPE	H. S. Average Grade	1st-Yr. Average Grade			
1. ACPE Total	MN		.47	.51	114	21	222
(raw score)	F		.46	.45	106	22	482
2. High School	MN	.47		.59	2.93	.51	222
Average Grade	F	.46		.62	3.08	.49	482
3. First-Year College	MN	.51	.59		2.43	.56	222
Average Grade	F	.45	.62		2.46	.50	482

II. Multiple Correlations (Variables 1 and 2 vs. Variable 3):

Sample	Multiple R
Male Nonveterans	.65
Female Students	.65
Combined Group	.65

III. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	4.1558	1	Between .02 and .05
B. Equality of slopes	3.2419	2	Between .10 and .20
C. Equality of intercepts	0.0648	1	Between .70 and .80

IV. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Nonveteran
Advantage expressed in grade units	.00
Advantage expressed in standard error of estimate units	.01
Per cent of male nonveterans excelling the average female student	50
Level of significance of difference (from IIIC above)	Not significant

ent with the results at Douglas University, where no significant difference was found between male and female nonveteran students. The results for Western State must be interpreted with caution, however, in view of the significant difference in errors of estimate.

Turning to the analysis of covariance of male veteran and female students (the two largest subgroups), the results of which are shown in Table 19, we find that the multiple correlations are respectively .60 and .65, and that the hypothesis of equal errors of estimate is disproved at the 1% level. Probably all we are justified in concluding is that male veteran and female students at Western State are not equally predictable, and that we cannot draw any conclusion as to which subgroup achieves higher grades in relation to ability. Grades of female students are distinctly more predictable, in terms of standard errors of estimate, than those of male veteran students.

Central State University. At Central State, two separate groups were studied. The first of these included freshmen entering in 1946; the second, freshmen entering in 1945. The latter group was unique in the study; in no other institution were veteran and nonveteran male students who entered in 1945 compared. For the 1946 group, the comparison of achievement of veterans and nonveterans was made after allowing for differences in High School Average Grade and in a composite entrance test score. For the 1945 group, only the Composite Test was used in the analysis of covariance.

Central State is a large midwestern state university which admits students living in the state upon completion of an appropriate high school course of study. Although it is coeducational, the data for the female nonveterans were not included in the academic phase of this study. As usual, freshmen in arts and science found that their program permitted a number of alternative ways of meeting various requirements; only English was a required course.

For the larger group at Central State, the following definition may be stated: male students who entered as freshmen in the fall of 1946, who completed two semesters of academic work during the academic year 1946-1947, and who returned a questionnaire. The group contained 466 male veterans and 166 male nonveterans. The following additional information regarding this group was determined from the questionnaires: About 25 per cent of the veteran group were under twenty at time of entrance; approximately 65 per cent were in the service two years or longer; and slightly over 10 per cent were married. Almost 80 per cent of the veterans indicated that they would probably have attended college without federal aid. About 15 per cent of the veterans' fathers had been graduated from college as compared with about 25 per cent for the male nonveterans. These figures are strikingly similar to those for the corresponding groups at Western State. However, the two institutions differ considerably on method of housing students. A variety of housing arrangements prevail at Central State, with slightly over 30 per cent of the veterans and a little over 40 per cent of nonveterans living in college dormitories, while only about 10 per cent of veterans and no nonveterans had done so at Western State. Somewhat over 10 per cent of the veterans at Central State supplied their own housing through rental or ownership of a house or apartment, and just over 20 per cent of veterans and of nonveterans lived in rooming or boarding houses. Only about 10 per cent of each group lived with parents or other near relatives.

Table 19

COMPARISON OF AVERAGE GRADES EARNED BY MALE VETERAN AND FEMALE STUDENTS

Western State University, College of Arts and Science, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:			Mean	SD	N
		ACPE	H. S. Average Grade	1st-Yr. Average Grade			
1. ACPE Total	MV		.36	.46	114	22	433
(raw score)	F		.46	.45	106	22	482
2. High School	MV	.36		.53	2.69	.50	433
Average Grade	F	.46		.62	3.08	.49	482
3. First-Year College	MV	.46	.53		2.39	.62	433
Average Grade	F	.45	.62		2.46	.50	482

II. Multiple Correlations (Variables 1 and 2 vs. Variable 3):

Sample	Multiple R
Male Veterans	.60
Female Students	.65
Combined Group	.62

III. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	31.0457	1	Less than .01
B. Equality of slopes	8.2798	2	-------------
C. Equality of intercepts	6.1525	1	-------------

IV. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.08
Advantage expressed in standard error of estimate units	0.19
Per cent of male veterans excelling the average female student	58
Level of significance of difference (from III above)	Ambiguous

The following information may be useful in interpreting the results presented in Table 20. The Composite Test score was reported as a percentile rank based on six tests: Correctness and Effectiveness of Expression, Reading Materials in Social Studies, Reading Materials in Natural Science, Interpretation of Literary Materials, General Mathematical Ability, and General Vocabulary. The percentile scores were converted to a standard scale with a mean of 13 and a standard deviation of 4. The criterion was the First-Year College Average Grade. The grading system used five categories having the numerical values 4 to 0.

The results for students entering in the fall of 1946 are presented in Table 20. It will be noted that the Composite Test has a somewhat higher validity for veterans than for nonveterans, and that the validity of High School Average is the same for both subgroups; in most institutions it has been found that high school standing is more predictive of college grades for nonveterans than for veterans. Nonveterans have higher means for both predictors, but the means are practically the same for freshman average grade. The hypotheses of equal errors of estimate and equal slopes are not disproved, and the difference in intercepts is significant at the 1% level. The difference in intercepts amounts to .19 grade units. In standard error of estimate units, the advantage of veterans is .39. Sixty-five per cent of the male veterans excel the average nonveteran, the most extreme difference so far encountered. The difference in freshman grades, when aptitude is considered, is highly significant.

The group of students which entered in 1945 may be defined as follows: male students who entered in the fall or winter semester of 1945, and who completed at least three semesters before the summer of 1947. An eight-week summer term was counted as one semester for three of the 135 veterans. Questionnaire information obtained from 63 of the veterans indicated that they were older, as would be expected, than the 1946 group, and that about 80 per cent had completed two years or more of active duty. Roughly 35 per cent were married at the time of the questionnaire administration (the spring of 1947). Sixty-five per cent indicated that they probably would have attended college without the veterans' aid. About 15 per cent had fathers who had completed college, a figure which agrees closely with that for the veterans entering Central State in 1946. About 40 per cent of these veterans lived in dormitories, and about 20 per cent had their own house or apartment.

The analysis plan for the group entering in 1945 differed from that for the 1946 group in only two respects: First Three Semesters College Average Grade was used as the criterion, and High School Average was not included in the analysis of covariance. Basic results are shown in Table 21. The number of cases is rather small for the 1945 group; there were only 59 in the male nonveteran subgroup. The results must therefore be interpreted with caution.

The validity coefficients for the Composite Test score were .43 and .49 for veterans and nonveterans respectively. Those for High School Average turned out to be .33 and .65 for the two subgroups. Since the use of both predictors yielded regression planes which differed reliably in slopes (at the 2% level of significance), it was decided to use only the Composite Test

Table 20

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Central State University, College of Arts and Science, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with: Composite Test	Correlation with: H. S. Avg. Grade	Correlation with: First-Year Avg. Grade	Mean	SD	N
1. Composite Test (converted score)	MV MN		.48 .43	.58 .51	12.5 13.5	3.9 3.6	466 166
2. High School Average Grade	MV MN	.48 .43		.61 .61	2.48 2.74	.62 .64	466 166
3. First-Year College Average Grade	MV MN	.58 .51	.61 .61		2.20 2.19	.68 .66	466 166

II. Multiple Correlations (Variables 1 and 2 vs. Variable 3):

Sample	Multiple R
Male Veterans	.69
Male Nonveterans	.67
Combined Group	.68

III. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.016	1	Between .80 and .90
B. Equality of slopes	0.815	2	Between .50 and .70
C. Equality of intercepts	17.753	1	Less than .01

IV. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.19
Advantage expressed in standard error of estimate units	0.39
Per cent of veterans excelling the average nonveteran	65
Level of significance of difference (from IIIC above)	1%

Table 21

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Central State University, College of Arts and Science
(Students entering as freshmen during the academic year 1945-1946)

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with. Composite Test	Correlation with. 1st. 3 Sem. Avg. Grade	Mean	SD	N
Composite Test	MV		.43	13.5	3.8	135
(converted score)	MN		.49	14.5	4.2	59
First Three Semesters	MV	.43		2.36	.53	135
College Average Grade	MN	.49		2.38	.65	59
Validity coefficient for combined group:			.45			

II. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	2.792	1	Between .05 and .10
B. Equality of slopes	0.795	1	Between .30 and .50
C. Equality of intercepts	0.313	1	Between .50 and .70

III. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.04
Advantage expressed in standard error of estimate units	0.09
Per cent of veterans excelling the average nonveteran	54
Level of significance of difference (from IIC above)	Not significant

as the predictor. From Table 21, it will be seen that the difference in errors of estimate falls between the 5% and 10% levels of significance. The differences in slopes and intercepts of the regression lines are not significant. The superior subgroup is the male veteran. The difference in intercepts, however, is only .04 grade units. In standard error of estimate units, the advantage of the veterans is .09, which means that 54 per cent of the veterans exceed the average nonveteran in average grade.

Littletown State University. Two groups, both entering as freshmen in the fall of 1946, were studied at Littletown State. Of these, the group entering the College of Arts and Science will be discussed in this section; the other group, which entered the College of Business, will be discussed in a later section. For the arts and science students, the analysis was limited to a comparison of the achievement of veteran and nonveteran students after allowing for differences in American Council Psychological Examination total scores.

Littletown State University is a coeducational state university located in a small midwestern city. Students are drawn mainly from the high schools of the state, and are admitted on the basis of high school graduation. Students with poor averages in high school are admitted on a probationary basis. Freshmen in arts and science are required to take an English course; the remainder of their program is determined by broader requirements.

The sample under consideration may be defined as follows: students who entered as beginning freshmen in the fall of 1946, who completed eleven or more hours of work in the College of Arts and Science in each of the two semesters of the academic year, 1946-1947, and (since the proportion of questionnaires returned was quite high) who completed a questionnaire. The number of students was 103 and 107 for veterans and nonveterans respectively. From the questionnaires, further information about the group was obtained, as follows: About 30 per cent of the veterans were under twenty years of age at time of entrance; slightly fewer than 50 per cent served for two years or more in the armed services; and 3 per cent were married. Somewhat over 80 per cent of the veterans indicated that they probably would have attended college even without GI money. About 20 per cent of the veterans indicated that their fathers had completed college; the corresponding figure for nonveterans was slightly below 30 per cent. Forty per cent of the veterans and about 65 per cent of the nonveterans were living in college dormitories at the time of the study.

The predictor selected for use at Littletown State was again the American Council Psychological Examination total score. Raw scores were used. Although data on the quarter of the class in which a student stood were available, it was decided to omit this variable so that students for whom it was not available could be included in the study. The criterion, First-Year College Average Grade, was actually a point-hour ratio, based on a scale of five steps having the numerical values of 4 to 0.

The results are shown in Table 22. Although the validity coefficient of the ACPE was somewhat higher for veterans than for nonveterans, the analysis of covariance shows that differences in errors of estimate and slope are no greater than would be expected to arise frequently by chance. The nonveteran

Table 22

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Littletown State University, College of Arts and Science, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with: ACPE	Correlation with: First-Year Avg. Grade	Mean	SD	N
ACPE Total (raw score)	MV		.49	111	23	103
	MN		.34	115	20	107
First-Year College Average Grade	MV	.49		2.29	.68	103
	MN	.34		2.35	.69	107

Validity coefficient for combined group: .42

II. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.814	1	Between .30 and .50
B. Equality of slopes	0.464	1	Between .30 and .50
C. Equality of intercepts	0.00193	1	Between .95 and .98

III. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Nonveteran
Advantage expressed in grade units	0.00
Advantage expressed in standard error of estimate units	0.01
Per cent of veterans excelling the average nonveteran	50
Level of significance of difference (from IIC above)	Not significant

subgroup obtained higher scores, on the average, for both the predictor and the criterion. The difference in intercepts of the regression lines is smaller than usually would arise by chance; the probability that the obtained value of Chi-square would occur by chance is between .95 and .98. When allowance is made for ability differences, then, the average grades of veterans and nonveterans at Littletown State are almost identical and, of course, the very slight difference in favor of nonveterans is not significant.

Eastern City University. For students entering Eastern City in the fall of 1946, the analysis was limited to a comparison of male veteran and nonveteran students, after allowing for differences in aptitude reflected in High School Average Grade and Composite Score on entrance tests. The criterion measure was First-Year College Average Grade.

Eastern City is a municipal college of arts and science located in a large city. Although it is coeducational, only male students were included in the academic analysis. (Questionnaire results for female students were tabulated and will be reported in later chapters.) Students are admitted to Eastern City on a competitive basis, using primarily their high school records and their scores on entrance examinations administered by the college. Although the freshman program in arts and science is not prescribed, a relatively large number of required courses, in English, mathematics, and social sciences, must be completed before graduation.

The groups selected for statistical analysis may be described as follows: male students who enrolled as beginning freshmen in the fall of 1946, who completed two semesters of academic work, and who returned a questionnaire. The limitation of the group to students entering in the fall greatly reduced the number of veterans available for study, since many veterans had been admitted during the previous spring. It was considered desirable, however, to exclude these veterans in order to obtain as comparable conditions as possible between veteran and nonveteran students. The following added information about the group was obtained from the questionnaire analysis: Like the Adams, Stewart, and Douglas veterans, the veterans at Eastern City were relatively young (about 40 per cent were under twenty at time of entrance); about 40 per cent had completed two years or more in the service; and none were married. Approximately 65 per cent of the veterans would probably have attended college without federal aid. Only about 5 per cent of veterans were sons of college graduates; for the nonveterans, the corresponding figure was about 15 per cent. Practically all of the students, both veteran and nonveteran, lived at home or with near relatives.

For the statistical analysis, High School Average and Composite Test Score were combined, using equal weights. (The standard deviations were roughly equal.) The Composite Test Score was based on performance on eight Cooperative tests: Mechanics of Expression, Effectiveness of Expression, Vocabulary, Speed of Comprehension, Level of Comprehension, Mathematics, Natural Science, and Social Studies.

The results of the analysis are presented in Table 23. The validities are somewhat lower than usually found by Eastern City, possibly because the subgroups have been made more homogeneous by separating the sexes. The pre-

Table 23

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Eastern City University, College of Arts and Science, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:		Mean	SD	N
		Comp. Test + H.S. Avg.	First-Year Avg. Grade			
Composite Test Score plus High School Average	MV		.45	165.5	4.6	53
	MN		.54	167.5	6.5	147
First-Year College Average Grade	MV	.45		0.26	.53	53
	MN	.54		0.37	.59	147

Validity coefficient for combined group: .53

II. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.128	1	Between .70 and .80
B. Equality of slopes	0.0184	1	Between .80 and .90
C. Equality of intercepts	0.0414	1	Between .80 and .90

III. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Nonveteran
Advantage expressed in grade units	0.02
Advantage expressed in standard error of estimate units	0.04
Per cent of veterans excelling the average nonveteran	48
Level of significance of difference (from IIC above)	Not significant

dictor score for veterans is lower than for nonveterans, and the veterans also earned a lower mean freshman average grade. The errors of estimate, slopes, and intercepts are all somewhat more similar than would be expected by chance. When the effect of ability is eliminated, the nonveterans are found to have a very slight advantage, .02 grade units. Forty-eight per cent of the veterans exceed the average nonveteran; the amount of overlapping of the distributions is very great, and, of course, the difference is not significant.

Midwest City University. Two groups, both entering as freshmen in 1946, were studied at Midwest City. The present section is concerned only with those entering the College of Arts and Science; those entering the College of Engineering will be discussed in the following section. For Midwest City students, the analysis was limited to a comparison of the relative achievement of male veteran and nonveteran students after eliminating the effect of differences in performance on the American Council Psychological Examination.

Midwest City is a large coeducational municipally-supported institution. Students are admitted on the basis primarily of high school record, being selected from students graduated in the upper two-thirds of their graduating classes. Freshmen in arts and science are required to take English and a survey course in western civilization and to fulfill additional broader requirements.

The group studied may be defined as follows: students who entered as beginning freshmen in the fall of 1946, who completed seven or more semester hours of academic work during each semester, and who returned a questionnaire. From the questionnaires completed by this group, the following information may be noted: Among the veterans, about 35 per cent were under twenty years old; about 50 per cent served two years or more in the armed services; and 10 per cent were married. Slightly over 80 per cent indicated that they probably would have attended college without their federal scholarship. Slightly less than 20 per cent of veterans and about 30 per cent of nonveterans reported that their fathers had completed college. These results (except for the higher proportion of married students) are quite similar to those for Littletown State. Substantially all students in the group studied were living at home or with near relatives, the percentages being roughly 85 for veterans and just over 90 for nonveterans.

Total raw scores on the ACPE were used as the only predictor for this group; data on high school standing were available for only a relatively small proportion of the students. The criterion, the First-Year College Average Grade, is based on a scale of six points corresponding to the values 5 to 0. The results of the analysis are shown in Table 24.

An unusually large difference between the validity coefficients for veterans and nonveterans was found for this group at Midwest City; the correlations are .57 and .29 for veterans and nonveterans respectively. The means and standard deviations of ACPE scores are identical for the two subgroups, but the veterans achieve an average grade which is .22 higher than for nonveterans. None of the three hypotheses are disproved. The veteran subgroup

Table 24

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Midwest City University, College of Arts and Science, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with: ACPE	Correlation with: First-Year Avg. Grade	Mean	SD	N
ACPE Total (raw score)	MV		.57	120	23	83
	MN		.29	120	23	72
First-Year College Average Grade	MV	.57		3.40	.77	83
	MN	.29		3.18	.80	72

Validity coefficient for combined group: .44

II. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	2.872	1	Between .05 and .10
B. Equality of slopes	3.323	1	Between .05 and .10
C. Equality of intercepts	3.622	1	Between .05 and .10

III. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.22
Advantage expressed in standard error of estimate units	0.31
Per cent of veterans excelling the average nonveteran	62
Level of significance of difference (from IIC above)	Not significant

is superior by the same amount, .22 grade units, when ability is considered, since the two subgroups have the same means and standard deviations on the ACPE. Although 62 per cent of the veterans exceed the average nonveteran, the difference is not significant because of the small number of cases.

Summary. The results for the six groups from five state and municipal colleges of arts and science are in general similar to those found for the private institutions. For the private colleges, the veterans showed higher achievement in six out of seven cases, but the difference was significant (at the 2% level) in only one case. For the public arts colleges, the veterans were superior in four out of six cases. The superiority of the veterans was significant at the 1% level for one institution (Central State). At another (Western State) the results of the significance test were ambiguous because of difference in errors of estimate, which was significant at the 2% level.

The tendency for high school standing to have greater validity for nonveterans than for veterans is verified in one case, but at Central State the coefficient was the same for both subgroups.

Grades of Veteran and Nonveteran Students in Engineering

Colleges of State and Municipal Universities

Midwest Technological University. At Midwest Technological University, a relatively extensive analysis was made. Intercorrelations were determined for the following variables: part and total scores on the American Council Psychological Examination, English and mathematics placement test scores, High School Average Grade, average grades for each quarter of the freshman college year, number of college credits per quarter, and course grades in English and mathematics. The comparison of veteran and nonveteran engineering students took into account differences between the two subgroups in High School Average Grade and in total score on the ACPE.

Midwest Technological University is a land-grant college in a state which also supports a state university. Students who are residents of the state are admitted upon completion of an appropriate high school program. Students in the different branches of engineering take a common freshman year, which includes chemistry, drawing, English, college algebra, trigonometry and analytic geometry.

The group selected for study may be defined as follows: students who entered as beginning freshmen in the fall of 1946, who attended classes on the main campus, and who completed three quarters of engineering college work, with ten or more hours of academic work each quarter. Veterans who received ten or more credits in specific courses for training received during their service were considered not to be beginning students. The limitation of the study to those students studying on the main campus (thus excluding a substantial number receiving parallel training on a nearby sub-campus) was considered desirable on the grounds that the comparability of results would be greater for those students trained under more nearly typical conditions. Regarding the group chosen for study, the following information was obtained by examination of some results of the questionnaire analysis: About 30 per cent of the veterans were under twenty years of age; 60 per cent had completed two years or more of active duty; and roughly 15 per cent were married. About 75 per cent would probably have attended college without the GI scholarships. Fifteen per cent of the veterans and 30 per cent of the nonveterans reported that their fathers had completed college. Housing arrangements were diversified, with no predominant pattern. About 15 per cent of the veterans owned or were renting a house or apartment.

Two sets of intercorrelations were calculated, involving a larger number of variables than was used for the analysis of covariance. These intercorrelations are shown in Table 25. The statistics at the right of the diagonal are for nonveterans, and those below the diagonal are for veteran students.

The predictors studied include total score and part scores on the ACE Psychological Examination. Scores on this test were reported as percentiles, which were converted to a standard scale having a mean of 13 and a standard deviation of 4. The English and mathematics tests were placement tests. The Mathematics Test was prepared at Midwest Tech, and the English Test was prepared by the United States Armed Forces Institute. The criteria, quarter average grades for the three semesters of the freshman college year, are based on a five-step scale with the numerical values 4 to 0.

Comparison of the means of veterans and nonveterans on the predictive measures shows that the average veteran excels on only one test, the English Test, although the differences in means are generally small. The greatest advantage of the nonveterans appears to be in Mathematics, where the difference in means amounts to about half of a standard deviation. Turning to the means for quarter averages and course grades, we find that the veterans were higher in every case. The mean number of credits is greater for nonveterans than for veterans in each of the three quarters.

The correlation of number of credits for each quarter with average grade for that quarter is low and positive for both subgroups, indicating a tendency for the better students to take heavier course loads.

In general, the best predictors of quarter average grades are total score on the ACPE and High School Average Grade. There is very little difference at Midwest Tech in the predictive value of high school standing for veterans and nonveterans, although the correlations with average grades tend to be slightly higher for the nonveteran subgroup. The ACPE tends to have slightly higher validity coefficients for the veterans than for the nonveterans, except in the case of First-Quarter College Average Grade. Here the correlation is higher for the nonveteran subgroup (.65 as compared with .53 for veterans, a difference which is significant at the 5% level). As might be expected, the best predictors of English grades are the English placement test and the L-score of the ACPE. The Mathematics Test is the best predictor of mathematics grades for both veterans and nonveterans, the validity coefficients for nonveterans being somewhat higher.

Table 25

INTERCORRELATIONS OF TEST SCORES, HIGH SCHOOL AVERAGE, COLLEGE CREDIT HOURS, AND FIRST-YEAR COLLEGE GRADES

Midwest Technological University, College of Engineering, Freshmen, 1946-1947

		Male Nonveterans (N=128)																
		ACPE-Q	ACPE-L	ACPE-T	Engl. Test	Math. Test	H. S. Avg.	1st-Qr. Cr.	2nd-Qr. Cr.	3rd-Qr. Cr.	1st-Qr. Avg.	2nd-Qr. Avg.	3rd-Qr. Avg.	Engl. 101	Engl. 102	Math. 101	Math. 102	Mean	S. D.
Male Veterans (N=271)	ACPE-Quantitative*		.44	.78	.34	.54	.26	.28	.18	.13	.51	.33	.27	.17	.19	.46	.41	15.0	3.6
	ACPE-Linguistic*	.42		.89	.65	.39	.34	.41	.31	.21	.57	.49	.50	.52	.50	.39	.34	13.7	3.5
	ACPE-Total*	.77	.89		.61	.53	.37	.41	.30	.21	.65	.51	.50	.44	.45	.50	.44	14.4	3.5
	English Test	.38	.60	.60		.40	.45	.33	.31	.26	.56	.48	.49	.57	.58	.36	.33	13.4	3.4
	Mathematics Test	.45	.37	.47	.37		.31	.30	.19	.09	.54	.48	.33	.21	.29	.55	.58	16.3	3.0
	High School Average	.33	.41	.44	.40	.44		.26	.29	.22	.54	.63	.56	.35	.40	.39	.45	2.96	.56
	First-Quarter College Credits	.20	.29	.29	.30	.30	.46		.60	.46	.37	.34	.29	.23	.26	.38	.34	15.6	1.3
	Second-Quarter College Credits	.12	.18	.17	.24	.11	.16	.28		.37	.38	.33	.37	.22	.21	.34	.36	15.9	1.4
	Third-Quarter College Credits	-.01	.10	.07	.10	.06	.10	.22	.33		.29	.31	.19	.19	.16	.26	.29	15.8	1.3
	First-Quarter College Average	.44	.46	.53	.47	.50	.50	.25	.32	.23		.70	.72	.49	.48	.83	.65	2.24	.70
	Second-Quarter College Average	.44	.47	.54	.52	.45	.62	.36	.30	.21	.75		.78	.37	.61	.53	.75	2.31	.71
	Third-Quarter College Average	.47	.49	.56	.49	.42	.56	.38	.27	.20	.68	.75		.38	.48	.52	.56	2.17	.68
	English 101 Grade	.26	.53	.50	.53	.29	.35	.19	.19	.12	.52	.42	.38		.72	.18	.10	2.20	.89
	English 102 Grade	.30	.55	.53	.63	.30	.43	.26	.18	.06	.46	.55	.49	.60		.26	.27	2.03	1.00
	Mathematics 101 Grade	.36	.33	.40	.33	.44	.41	.25	.21	.15	.76	.63	.53	.22	.28		.64	2.35	1.02
	Mathematics 102 Grade	.45	.35	.45	.37	.48	.45	.35	.30	.12	.66	.77	.64	.32	.33	.56		2.45	1.14
	Mean	14.2	13.4	13.7	13.8	14.8	2.75	14.5	15.2	15.1	2.44	2.41	2.32	2.33	2.32	2.49	2.48		
	Standard Deviation	3.5	3.6	3.5	3.4	3.4	.62	1.2	1.3	1.3	.69	.72	.69	.75	.93	.98	1.08		

*Scores on ACPE were converted to a scale having a mean of 13 and a standard deviation of 4.

The intercorrelations of the quarter averages range from .68 to .78 with a median of about .73. Assuming a reliability of .73 for the quarter averages, use of the Spearman-Brown formula would predict that the reliability of average grades based on three quarters would be .89. When it is recalled that this method of estimating reliability tends to give an underestimate (because the three quarter grades are not random thirds of the freshman average grade), this figure may be considered satisfactorily high.

The results of the analysis of covariance are shown in Table 26. The multiple correlations of the ACPE in combination with High School Average are unusually high: .72 and .76 for veterans and nonveterans respectively, and .70 for both subgroups combined. As has already been noted, the veterans on the average make lower ACPE scores and have a lower High School Average, but achieve higher First-Year College Average Grades in the College of Engineering. The hypotheses of equality of errors of estimate and slopes of regression planes are not disproved, but the difference in intercepts is significant at the 1% level. There is, then, a marked tendency for veterans to earn higher grades than nonveterans of equal ability as measured by the predictors used. The difference amounts to .30 grade units or .70 error of estimate units. Seventy-six per cent of the veterans exceed the average nonveteran, which is the largest difference found in the study of twenty-five different groups.

Middle State University. At Middle State, intercorrelations of a number of predictors and criteria were also studied. Here, American Council Psychological Examination total score, High School Rank, Year of High School Graduation, First-Year College Average Grade, and course grades in Drawing and Mathematics were analyzed. A unique feature of the analysis of Middle State data is the fact that veterans were compared with nonveterans not only on the basis of First-Year Average Grade, but also on their grades in Mathematics and Drawing. In all three comparisons, differences in High School Rank and in ACPE total score were taken into account.

Middle State is a large state university located in a midwestern city. Students of engineering are drawn from graduates ranking in the upper half of their high school classes. Chemistry, English, mathematics, and drawing are required courses for engineering students.

The group studied may be defined as follows: students who were admitted to the College of Engineering as freshmen in the fall of 1946, who completed three quarters of work, including eleven or more hours each quarter, and who completed a questionnaire. Transfer students were excluded, as usual. From the questionnaires, it was learned that about 35 per cent of the veterans were under twenty upon entrance, that about 55 per cent served two years or more on active duty, and that approximately 10 per cent were married. Somewhat over 75 per cent would probably have attended college without the GI Bill. Ten per cent of veterans reported that their fathers had been graduated from college; the corresponding figure for nonveterans was roughly 15 per cent. About 65 per cent of the veterans and about 75 per cent of the nonveterans were living at home or with near relatives at the time the study was made.

Table 26

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Midwest Technological University, College of Engineering, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:			Mean	SD	N
		ACPE	H. S. Average Grade	1st-Yr. Average Grade			
1. ACPE (1945) Total (converted score)	MV		.44	.60	13.7	3.5	271
	MN		.37	.61	14.4	3.5	128
2. High School Average Grade	MV	.44		.62	2.75	.62	271
	MN	.37		.53	2.96	.56	128
3. First-Year College Average Grade	MV	.60	.62		2.39	.63	271
	MN	.61	.53		2.24	.63	128

II. Multiple Correlations (Variables 1 and 2 vs. Variable 3):

Sample	Multiple R
Male Veterans	.72
Male Nonveterans	.76
Combined Group	.70

III. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.601	1	Between .30 and .50
B. Equality of slopes	1.718	2	Between .30 and .50
C. Equality of intercepts	39.780	1	Less than .01

IV. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.30
Advantage expressed in standard error of estimate units	0.70
Per cent of veterans excelling the average nonveteran	76
Level of significance of difference (from IIIC above)	1%

The predictors employed in the study included total score on the 1937 edition of the American Council Psychological Examination (expressed in terms of raw score) and High School Rank. The ACPE was given to high school students in their senior year throughout the state. It was administered at the university in cases where a student lacked a score on this test. The principal source of data was the high school testing program, but in a few cases scores obtained at the time of college entrance were used. The previous studies at Adams and Stewart indicate that the time of testing, within the limits encountered here, is of little importance. The other predictor used, rank in high school class, was converted from percentile ranks to a standard scale with a mean of 13 and a standard deviation of 4.

The principal criterion employed is the First-Year College Average Grade (actually the point-hour ratio), based on a four-category scale having the equivalent numerical values of 3 to 0. First-quarter grades in engineering drawing and mathematics were used as additional criteria. For these variables, a five-step grading scale was used, the values ranging from 3 to -1. Still another variable, Year of High School Graduation, was used. The data for this variable were taken from questionnaire item 6(b)--"When were you last in full time attendance in high school or preparatory school?" The item was precoded in such a way that 1 = before 1940, 2 = 1940, 3 = 1941, etc. Ordinarily the response to the item would indicate year of high school graduation; the item was put into the form shown above because results for year of high school graduation would be misleading in the case of veterans who were granted high school diplomas after war service on the basis of USAFI examinations or credit for military service.

The intercorrelations, means, and standard deviations of these variables are shown in Table 27. The mean Year of High School Graduation indicates that most nonveterans graduated in 1946, while the typical veteran last attended high school in 1943. (The item code from the table less 2 gives the last digit of the year.) Veterans, of course, showed much greater variability with respect to this measure. Nonveterans had higher means on both ACPE and High School Rank, while the veterans were superior, on the average, on all three criterion measures employed.

In the case of nonveterans, the correlations of Year of High School Graduation with other variables are somewhat meaningless, because of the narrow range and highly skewed distribution. Whatever correlation is found is due to the few nonveterans who graduated prior to 1946. For veterans the correlations are more meaningful; they range from .20 (with High School Rank) to -.01 (with Drawing Grade). Except for the r of -.01, all the correlations are positive and above .08, which may indicate a very slight tendency for the more recent high school graduates to be superior. Such a relationship could easily result from admissions policy or a process of self-selection and does not necessarily reflect a general tendency.

The best predictor of First-Year Average Grade is High School Rank; the r's are .51 and .53 for veterans and nonveterans respectively. The ACPE yields a validity coefficient for veterans which is considerably higher than for nonveterans; the coefficients are .42 and .28. As might be expected, the

Table 27

INTERCORRELATIONS OF AMERICAN COUNCIL PSYCHOLOGICAL EXAMINATION TOTAL SCORE, HIGH SCHOOL RANK, YEAR OF HIGH SCHOOL GRADUATION, AND FIRST-YEAR COLLEGE GRADES

Middle State University, College of Engineering, Freshmen, 1946-1947

		Male Nonveterans (N=98)							
		ACPE-T	High School Rank	Year of H. S. Grad.	1st-Year Average	Drawing Grade	Mathematics Grade	Mean	S. D.
Male Veterans (N=352)	ACPE-Total (raw score)		.49	.14	.28	.18	.28	93.1	22.3
	High School Rank	.46		.01	.53	.14	.40	16.4	3.3
	Year of High School Graduation	.10	.20		-.14	.10	-.09	7.85	.71
	First-Year College Average Grade (4-step scale)	.42	.51	.09		.35	.75	1.32	.60
	Drawing Grade First Quarter (5-step scale)	.23	.27	-.01	.50		.19	0.53	.91
	Mathematics Grade First Quarter (5-step scale)	.34	.41	.10	.76	.30		0.39	1.10
	Mean	88.1	15.6	5.15	1.40	0.71	0.49		
	Standard Deviation	21.5	3.1	1.67	.66	.83	1.10		

Drawing Grades are not well predicted by either of the predictive measures used. Validity coefficients for Mathematics Grades are somewhat higher and are of about the same magnitude for veterans and nonveterans.

Three analyses of covariance were computed for the data at Middle State University, one for each of the criteria employed. The results for First-Year College Average Grade are shown in Table 28. The multiple correlations are .56 and .53 for veterans and nonveterans respectively, and .53 for both subgroups combined. The hypotheses of equal errors of estimate and equal slopes are not disproved, but the hypothesis of equal intercepts of the generalized regression planes is disproved at the 1% level of significance. The .08 advantage of the veterans in raw mean average grade is increased to .19 when the effect of ability is taken into account. In standard error of estimate units, the veterans' advantage is .34; 63 per cent of veterans excel the average nonveteran. The advantage of veteran students in First-Year Average Grade at the College of Engineering at Middle State University is highly significant.

Table 29 presents the results where Drawing Grade is used as the criterion. This criterion is less predictable than either of the others; the three multiple correlations are .30, .19, and .26. The intercepts are significantly different at the 1% level, the difference in intercepts being .25 grade units. In error of estimate units, the difference is .30, and 62 per cent of the veterans are found to exceed the average nonveteran when the measures of ability are taken into account.

The results of the analysis of covariance in which Mathematics Grade is used as the criterion are shown in Table 30. Here the three multiple correlations are very similar in magnitude, .44, .41, and .43. The differences in errors of estimate and slopes of the regression planes are no greater than would be expected by chance, but the intercepts are significantly different at the 5% level. The advantage of the veteran subgroup, which is .10 in raw grade units, becomes .24 when allowance is made for the difference in ability. Fifty-nine per cent of the veterans excel the average nonveteran.

For all three criteria used at Middle State, then, the veterans proved to achieve significantly higher grades than nonveterans when allowance is made for the difference in ability. When Mathematics Grade is used as the criterion, however, the difference is significant at only the 5% level.

Midwest City University. The analysis of data for engineering students at Midwest City was limited to a comparison of their relative first-year grades after allowing for differences in total score on the American Council Psychological Examination.

Like the students in arts and science, Midwest City engineering students are drawn from the upper two-thirds of their high school graduating classes. As freshmen, they take English, drawing, descriptive geometry, chemistry, college algebra, trigonometry, analytic geometry, and mechanics. The engineering program at Midwest City is well known for its practical emphasis.

Table 28

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Middle State University, College of Engineering, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:			Mean	SD	N
		ACPE	H. S. Rank	1st-Yr. Average Grade			
1. ACPE (1937) Total (raw score)	MV		.46	.42	88.1	21.5	352
	MN		.49	.28	93.1	22.3	98
2. High School Rank (converted score)	MV	.46		.51	15.6	3.1	352
	MN	.49		.53	16.4	3.3	98
3. First-Year College Average Grade (4-step scale)	MV	.42	.51		1.40	.66	352
	MN	.28	.53		1.32	.60	98

II. Multiple Correlations (Variables 1 and 2 vs. Variable 3):

Sample	Multiple R
Male Veterans	.56
Male Nonveterans	.53
Combined Group	.53

III. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.913	1	Between .30 and .50
B. Equality of slopes	4.702	2	Between .05 and .10
C. Equality of intercepts	8.816	1	Less than .01

IV. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.19
Advantage expressed in standard error of estimate units	0.34
Per cent of veterans excelling the average nonveteran	63
Level of significance of difference (from IIIC above)	1%

Table 29

COMPARISON OF DRAWING GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Middle State University, College of Engineering, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:			Mean	SD	N
		ACPE	H. S. Rank	Drawing Grade			
1. ACPE (1937) Total (raw score)	MV		.46	.23	88.1	21.5	352
	MN		.49	.18	93.1	22.3	98
2. High School Rank (converted score)	MV	.46		.27	15.6	3.1	352
	MN	.49		.14	16.4	3.3	98
3. Drawing Grade-1st Quarter (5-step scale)	MV	.23	.27		0.71	.83	352
	MN	.18	.14		0.53	.91	98

II. Multiple Correlations (Variables 1 and 2 vs. Variable 3):

Sample	Multiple R
Male Veterans	.30
Male Nonveterans	.19
Combined Group	.26

III. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	2.197	1	Between .10 and .20
B. Equality of slopes	1.492	2	Between .30 and .50
C, Equality of intercepts	6.849	1	Less than .01

IV. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.25
Advantage expressed in standard error of estimate units	0.30
Per cent of veterans excelling the average nonveteran	62
Level of significance of difference (from IIIC above)	1%

Table 30

COMPARISON OF MATHEMATICS GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Middle State University, College of Engineering, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:			Mean	SD	N
		ACPE	H. S. Rank	Math. Grade			
1. ACPE (1937) Total (raw score)	MV		.46	.34	88.1	21.5	352
	MN		.49	.28	93.1	22.3	98
2. High School Rank (converted score)	MV	.46		.41	15.6	3.1	352
	MN	.49		.40	16.4	3.3	98
3. Mathematics Grade-First Quarter (5-step scale)	MV	.34	.41		0.49	1.10	352
	MN	.28	.40		0.39	1.10	98

II. Multiple Correlations (Variables 1 and 2 vs. Variable 3):

Sample	Multiple R
Male Veterans	.44
Male Nonveterans	.41
Combined Group	.43

III. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.0566	1	Between .80 and .90
B. Equality of slopes	0.725	2	Between .50 and .70
C. Equality of intercepts	4.342	1	Between .02 and .05

IV. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.24
Advantage expressed in standard error of estimate units	0.24
Per cent of veterans excelling the average nonveteran	59
Level of significance of difference (from IIIC above)	5%

The sample upon which the analysis was based may be defined as follows: students entering as beginning freshmen in the fall of 1946, who completed the full academic year, 1946-1947, and who returned a questionnaire. Further information which may help to describe the group was determined from the questionnaires. The veterans in this group were relatively old; only about 10 per cent being under twenty years of age. They had extensive military service; some 80 per cent served two years or longer. Slightly over 20 per cent were married, a figure larger than that for any other group composed entirely of freshmen who entered in 1946. About 65 per cent probably would have attended college without federal aid. Just over 10 per cent of the veterans and about 15 per cent of the nonveterans indicated that their fathers were college graduates. Slightly over 50 per cent of each of the two subgroups lived at home or with near relatives, and approximately 15 per cent of veterans were renting or owned their own housing.

The results of the analysis are shown in Table 31. The means for the two subgroups are only slightly different on the ACPE and First-Year College Average Grade, the veterans being a trifle higher on both. Although the validity coefficients differ by .09, the errors of estimate, slopes, and intercepts of the regression lines do not differ significantly. The nonveterans are found to have an advantage which amounts to only .02 grade units, when allowance is made for ACPE scores; 49 per cent of the veterans excel the average nonveteran. In the College of Engineering at Midwest City the veteran and nonveteran students are unusually similar with respect to college achievement in relation to aptitude.

Southern Technological University. Analysis of data for engineering students at Southern Tech was limited to a comparison of the relative achievement of male veteran and nonveteran students after allowing for differences in total score on the American Council Psychological Examination. In order to secure enough cases to warrant analysis, it was necessary to combine students who entered in the fall of 1945 with those who entered in the fall of 1946.

Southern Tech is the land-grant college for white students in a state which also supports a state university. Students are admitted upon completion of an appropriate high school course. Engineering students carry a freshman program which includes chemistry, English, algebra, trigonometry, analytic geometry, drawing, descriptive geometry, and shop.

The group studied may be defined as follows: students who entered as beginning freshmen either in the fall of 1945 or the fall of 1946; who completed three quarters of engineering work (including eleven or more credits per quarter) during the academic year in which they entered; and who completed a questionnaire. Students who received ten or more credits in specific subjects for training received while in the armed services were not considered to be "beginning" freshmen and were excluded. Further data upon the group was obtained from selected questionnaire items, as follows: somewhat over 60 per cent served two years or more in the armed services; approximately 15 per cent were married. About 65 per cent of the veterans would probably have attended college without the GI Bill of Rights. Slightly more than 10 per cent of veterans and about 25 per cent of nonveterans reported that their

Table 31

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Midwest City University, College of Engineering, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with: ACPE	Correlation with: First-Year Avg. Grade	Mean	SD	N
ACPE Total (raw score)	MV		.45	118	19	167
	MN		.36	115	20	171
First-Year College Average Grade	MV	.45		3.34	.74	167
	MN	.36		3.32	.77	171

Validity coefficient for combined group: .40

II. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	1.184	1	Between .20 and .30
B. Equality of slopes	0.646	1	Between .30 and .50
C. Equality of intercepts	0.101	1	Between .70 and .80

III. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Nonveteran
Advantage expressed in grade units	0.02
Advantage expressed in standard error of estimate units	0.03
Per cent of veterans excelling the average nonveteran	49
Level of significance of difference (from IIC above)	Not significant

fathers had completed college. Almost 40 per cent of the veterans and some 75 per cent of the nonveterans in this group were living in rooming or boarding houses. An additional near 20 per cent of veterans rented or owned an apartment or house. (Age of veterans is not reported for Southern Tech since the method of determining age at entrance is not adapted to groups whose members did not enter at a fixed time.)

The following information may aid in interpreting the results presented in Table 32: the criterion, First-Year College Average Grade, is based on the work of the three quarters of the freshman year. Grades are based on a five-step scale of 4 to 0. The only predictor used was the total raw score on the American Council Psychological Examination.

The results of the analysis indicate that the ACPE means are almost the same for the two subgroups, but the veterans achieve a higher freshman average grade than do the nonveterans. The test had reasonably high predictive value, the validity coefficients being .48 and .41 for veterans and nonveterans respectively and .46 for both subgroups combined. The hypotheses of equal errors of estimate and equal slopes are not disproved, but the difference in intercepts is significant at the 2% level. The difference in mean grades, adjusted for differences in ACPE score, is .25 (which is almost the same as the unadjusted difference since the two subgroups are nearly equal in ability). In standard error of estimate units, the difference is .42; 66 per cent of the veterans exceed the average nonveteran in freshman average grade.

Summary. In three of the four engineering schools studied, veterans were found to earn higher freshman average grades than nonveterans, when the influence of ability differences is eliminated. The difference found at two of the universities would be expected to occur by chance less than once in a hundred times, and at the third institution less than twice in a hundred. At the remaining college there was practically no difference between veteran and nonveteran students, although what difference occurred was in favor of the nonveterans. At one university, the veterans were also found to earn better grades than nonveterans of the same ability level in two specific courses, Drawing and Mathematics.

The tendency was found at Midwest Tech for the more able students, as judged both by predictor variables and college grades, to take the heavier course loads. Nonveterans tended to take slightly heavier course loads than the veterans.

High school standing has usually been found to predict grades better for nonveteran than veteran students, but at Midwest Tech the opposite conclusion was reached and at Middle State the difference in validity was small.

Table 32

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Southern Technological University, College of Engineering
-(Students who entered as freshmen in fall, 1945, or fall, 1946)

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:		Mean	SD	N
		ACPE	First-Year Avg. Grade			
ACPE Total (raw score)	MV		.48	111	21	120
	MN		.41	109	21	50
First-Year College Average Grade	MV	.48		2.50	.70	120
	MN	.41		2.22	.60	50

Validity coefficient for combined group: .46

II. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.956	1	Between .30 and .50
B. Equality of slopes	0.885	1	Between .30 and .50
C. Equality of intercepts	6.110	1	Between .01 and .02

III. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.25
Advantage expressed in standard error of estimate units	0.42
Per cent of veterans excelling the average nonveteran	66
Level of significance of difference (from IIC above)	2%

Grades of Veteran and Nonveteran Students in Agriculture and Business Colleges in State Universities

Midwest Technological University. For students in the College of Agriculture at Midwest Tech, a fairly extensive analysis was undertaken. Intercorrelations of the following variables were studied: part and total scores on the American Council Psychological Examination, score on an English placement test, High School Average, academic load carried for each quarter of the freshman college year, average grade for each quarter, and course grades in English. For the comparison of relative achievement between male veterans and male nonveterans, allowance was made for differences in total score on the ACPE and in High School Average Grade; the criterion was First-Year College Average Grade.

Residents of the state may be admitted to the College of Agriculture at Midwest Tech upon the completion of an appropriate high school course. English is the only course required for all agriculture students, although various other courses are required for certain large subgroups of these students. Even during the freshman year, a definite emphasis upon agricultural subjects is present, and students preparing for different specialties take somewhat different programs.

The group upon which the analysis was based may be defined as follows: students who entered as beginning freshmen in the fall of 1946 and who completed three quarters of work in the College of Agriculture (including ten or more hours of work each term) during the academic year 1946-1947. Veterans who received ten or more credits in specific courses for training received during their service with the armed forces were excluded. The following additional information about the group was taken from their questionnaire responses: Veterans in this group were relatively old, only about 20 per cent being under twenty at time of entrance, almost 60 per cent had two years or more of active duty; and 15 per cent were married. About 70 per cent of the veterans indicated that they would probably have attended college without government aid. Slightly over 10 per cent of the veterans and about 15 per cent of the nonveterans had fathers who were graduated from college. As with the Midwest Tech engineers, the housing arrangements for these students were quite varied. Somewhat over 10 per cent of the veterans were living in houses or apartments which they owned or rented.

It may be noted, in Table 33, that veterans tended to take slightly lighter course loads than the nonveterans, the difference amounting to about half a credit-hour. Number of credits correlated positively with all the other measures, both predictors and criteria, but no systematic difference is apparent between veterans and nonveterans in the magnitude of the correlations. As in the other analyses where information on this point was obtained, the better students tend to take the heavier course loads.

Comparing the means of the predictors, we find that the nonveterans are higher only on the ACPE Quantitative score and on High School Average. Without exception the veterans exceed the nonveterans on the criterion variables.

Table 33

INTERCORRELATIONS OF TEST SCORES, HIGH SCHOOL AVERAGE, COLLEGE CREDIT HOURS, AND FIRST-YEAR COLLEGE GRADES

Midwest Technological University, College of Agriculture, Freshmen, 1946-1947

		Male Nonveterans (N=102)														
		ACPE-Q	ACPE-L	ACPE-T	Engl. Test	H. S. Avg.	1st-Qr. Cr.	2nd-Qr. Cr.	3rd-Qr. Cr.	1st-Qr. Avg.	2nd-Qr. Avg.	3rd-Qr. Avg.	Engl. 101	Engl. 102	Mean	S. D.
Male Veterans (N=140)	ACPE-Quantitative*		.47	.80	.39	.35	.23	.08	.21	.30	.36	.31	.26	.27	12.3	3.7
	ACPE-Linguistic*	.55		.89	.63	.46	.30	.21	.30	.50	.41	.34	.48	.46	11.4	3.6
	ACPE-Total*	.83	.91		.62	.49	.32	.20	.31	.46	.43	.37	.44	.43	11.5	3.5
	English Test	.35	.57	.55		.44	.28	.20	.30	.47	.43	.35	.47	.44	11.6	3.7
	High School Average	.29	.38	.38	.47		.39	.30	.31	.57	.66	.53	.38	.47	2.75	.59
	First-Quarter College Credits	.11	.25	.20	.22	.40		.25	.27	.28	.22	.25	.27	.21	14.6	1.0
	Second-Quarter College Credits	.30	.30	.35	.29	.25	.25		.25	.31	.28	.19	.15	.23	15.8	1.2
	Third-Quarter College Credits	.20	.36	.32	.29	.31	.30	.10		.37	.41	.28	.35	.33	15.7	1.8
	First-Quarter College Average	.41	.48	.50	.55	.54	.27	.26	.32		.73	.53	.61	.48	2.07	.60
	Second-Quarter College Average	.40	.43	.48	.50	.50	.25	.28	.34	.64		.62	.40	.60	2.15	.57
	Third-Quarter College Average	.31	.39	.40	.52	.46	.20	.28	.18	.73	.66		.25	.38	2.24	.59
	English 101 Grade	.21	.47	.41	.53	.40	.13	.18	.25	.60	.36	.38		.52	1.90	.85
	English 102 Grade	.35	.52	.52	.62	.31	.06	.16	.21	.45	.54	.40	.57		1.97	.85
	Mean	11.9	12.2	11.9	12.6	2.52	14.1	15.2	15.3	2.30	2.30	2.30	2.16	2.19		
	Standard Deviation	3.8	3.8	3.9	3.7	.64	1.1	1.6	2.0	.67	.63	.73	.86	.84		

*Scores on ACPE were converted to a scale having a mean of 13 and a standard deviation of 4.

Somewhat different results are obtained for veterans and nonveterans with regard to the validity of the predictors. For nonveterans, High School Average is unquestionably the best predictor of quarter average grades, while for veterans the English Test appears to be generally superior. For predicting grades in English, the English Test is again relatively better for veterans than for nonveterans.

The analysis of covariance results are shown in Table 34. The ACPE and High School Average were selected as the predictors, and the criterion was First-Year College Average Grade. The multiple correlations proved to be quite high for both subgroups (.65 for veterans and .70 for nonveterans).

The standard errors of estimate were significantly different at the 2% level; grades of nonveterans tended to be more predictable. The equality of the slopes of the regression planes was not disproved, but the intercepts were found to be significantly different at the 1% level. The veteran subgroup was superior, the difference in intercepts being .23 grade units. In error of estimate units, the difference was .54, which means that 71 per cent of the veterans excelled the average nonveteran student. The test of the significance of the difference is ambiguous, in view of the fact that a difference in errors of estimate would be expected by chance less than two times in one hundred.

Midwest State University. Analysis of academic data for students in the College of Business of Midwest State University was limited to a comparison of achievement after allowing for differences in scores on the Ohio State University Psychological Examination.

Midwest State is a large state university located in a large city. Although it is coeducational, only male students were included in this analysis. Students who are residents of the state are admitted upon the completion of an appropriate high school course of study. Students of business are required to take courses in English, economics, business, and geography, and to meet certain broader requirements during their freshman year.

The group to be studied is defined as follows: students who entered as beginning freshmen in the fall of 1946; who completed three quarters in the College of Business, including at least ten hours of work in each quarter; and who returned a questionnaire. Students who were granted ten or more hours of credit in specific courses for training received during service were excluded from the group. The questionnaires provided the following additional information: About 30 per cent of the veterans were under twenty years of age; almost 60 per cent of them served two or more years on active duty; and slightly more than 10 per cent were married. About 75 per cent of the veterans would probably have attended college without the GI Bill. About 10 per cent of the veterans and roughly 25 per cent of the nonveterans indicated that their fathers were college graduates. With respect to housing, about 35 per cent of the veterans lived at home or with near relations; 40 per cent lived in boarding or rooming houses, and an additional 10 per cent lived in houses or apartments which they rented or owned. Slightly over 50 per cent of the nonveterans lived at home or with relatives, and roughly 25 per cent lived in boarding or rooming houses.

Table 34

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Midwest Technological University, College of Agriculture, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:			Mean	SD	N
		ACPE	H. S. Average Grade	1st-Yr. Average Grade			
1. ACPE (1945) Total (converted score)	MV MN		.38 .49	.52 .48	11.9 11.5	3.9 3.5	140 102
2. High School Average Grade	MV MN	.38 .49		.56 .68	2.52 2.75	.64 .59	140 102
3. First-Year College Average Grade	MV MN	.52 .48	.56 .68		2.30 2.15	.60 .51	140 102

II. Multiple Correlations (Variables 1 and 2 vs. Variable 3):

Sample	Multiple R
Male Veterans	.65
Male Nonveterans	.70
Combined Group	.64

III. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	5.425	1	Between .01 and .02
B. Equality of slopes	2.357	2	Between .30 and .50
C. Equality of intercepts	16.137	1	Less than .01

IV. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.23
Advantage expressed in standard error of estimate units	0.54
Per cent of veterans excelling the average nonveteran	71
Level of significance of difference (from IIIC above)	Ambiguous

The results for Midwest State business students are presented in Table 35. The Ohio State University Psychological Examination (OSPE) proved to be a good predictor of freshman grades for both veteran and nonveteran students; the validity coefficients were .59 and .55. The OSPE scores were converted to a standard scale having a mean of 13 and a standard deviation of 4. Since high school standing was reported in very coarse groupings (upper, middle, and lower third of the high school class), it was not thought worth-while to include it as a predictor. The criterion, which as usual was the First-Year College Average Grade, was based on a scale of five categories having the values of 4 to 0.

The nonveterans were superior, on the average, with respect to OSPE score, but their freshman average was slightly lower than that for the veteran students. The errors of estimate and slopes of the regression lines did not prove to be significantly different, but the intercepts were significantly different at the 5% level. The difference in intercepts amounted to .18 grade units. In error of estimate units, the difference was .33; 63 per cent of the veterans excelled the average nonveteran.

Littletown State University. For students in the College of Business at Littletown State, analysis was limited to a comparison of the achievement of male veteran and nonveteran students, taking into account differences in total scores on the American Council Psychological Examination. The criterion again is First-Year College Average Grade.

Residents of the state were admitted to the College of Business upon completion of an appropriate course of study in high school. Those with poor high school records were admitted on somewhat of a probationary basis. Students of business were required to take English and a survey course in business and to meet certain broader requirements during their freshman year.

The group selected for study may be defined as follows: male students who entered as beginning freshmen in the fall of 1946; who completed two semesters, including eleven or more hours of credit in each; and (since questionnaire returns were excellent) who returned questionnaires. The following information, obtained from the questionnaires, includes additional descriptive material: About 25 per cent of the veterans were under twenty years old; just over 60 per cent had two or more years of active duty; and slightly over 10 per cent were married. These figures closely resemble those for the students of business at Midwest State. Somewhat over 70 per cent of the veterans would probably have gone to college without a government scholarship. About 15 per cent of the veterans and roughly 35 per cent of the nonveterans reported that their fathers had been graduated from college. Approximately 45 per cent of the veterans and 85 per cent of the nonveterans were living in college dormitories; fewer than 10 per cent of the veterans were living in an apartment or house which they rented or owned.

The ACPE gives higher validity coefficients in the College of Business than in Arts and Science; the r's were .55 and .57 for veterans and nonveterans respectively (see Table 36). The two subgroups were very similar with respect to mean ACPE scores, but the male veterans tended to earn slightly higher grades.

Table 35

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Midwest State University, College of Business, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:		Mean	SD	N
		OSPE	First-Year Avg. Grade			
OSPE	MV		.59	12.0	3.2	232
(converted score)	MN		.55	13.2	4.0	58
First-Year College	MV	.59		2.26	.65	232
Average Grade	MN	.55		2.22	.70	58

Validity coefficient for combined group: .57

II. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	1.201	1	Between .20 and .30
B. Equality of slopes	1.189	1	Between .20 and .30
C. Equality of intercepts	5.029	1	Between .02 and .05

III. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.18
Advantage expressed in standard error of estimate units	0.33
Per cent of veterans excelling the average nonveteran	63
Level of significance of difference (from IIC above)	5%

Table 36

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN AND NONVETERAN MALE STUDENTS

Littletown State University, College of Business, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with: ACPE	Correlation with: First-Year Avg. Grade	Mean	SD	N
ACPE Total (raw score)	MV		.55	106	23	142
	MN		.57	107	21	65
First-Year College Average Grade	MV	.55		2.34	.65	142
	MN	.57		2.23	.61	65

Validity coefficient for combined group: .56

II. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.347	1	Between .50 and .70
B. Equality of slopes	0.0191	1	Between .80 and .90
C. Equality of intercepts	2.436	1	Between .10 and .20

III. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.12
Advantage expressed in standard error of estimate units	0.23
Per cent of veterans excelling the average nonveteran	59
Level of significance of difference (from IIC above)	Not significant

No significant differences were found, however, in the analysis of covariance; the difference in intercepts was significant at only the 20% level. The mean difference in grades of veterans and nonveterans of equal ability (as measured by the ACPE) was .12. Fifty-nine per cent of the veterans exceeded the average nonveteran student in the College of Business at Littletown State.

Summary. Male veterans proved to be superior to male nonveterans with respect to college achievement (in relation to ability) at the single agriculture college and in both business colleges studied. The difference was significant at the 5% level in one instance (Midwest State College of Business). The difference was not significant in the case of the business students at Littletown State, and was ambiguous for agriculture students at Midwest Tech.

The tendency for veterans to take lighter course loads than nonveterans was again found for agriculture students at Midwest Tech, and again the tendency was noted for the more able students to take heavier loads within each subgroup. High school standing was again found to yield better prediction of grades for male nonveterans than for veterans.

Grades of Interrupted Veterans and Uninterrupted Nonveterans

In the studies so far reported, the first-year average grade has been used as the primary criterion, and ability to do college work has been assessed on the basis of one or more tests of scholastic aptitude, tool skills, or achievement in high school subjects, used wherever possible in combination with a measure of high school standing. In the studies of interrupted veterans, however, the veteran is in a sense compared with himself as a nonveteran. The interrupted veteran, as defined here, is a student who attended college for a certain period of time (usually one year) as an ordinary civilian student, after which he entered military service; upon completion of his military service, he reentered the same institution and completed a defined amount of academic work (usually one year). For such students it seemed that the best basis for evaluating the effect of the student's intervening experiences on college achievement was a comparison of his achievement as a civilian student (before war service) with his achievement as a veteran student.

Logically, it might seem that the most appropriate control group would be one made up of students who followed the same pattern of college attendance as the interrupted veterans but whose academic careers were interrupted by something other than military service. Such a group, however, probably would not be representative of students generally. Furthermore, a sufficiently large group of such nonveterans could not be found in the colleges studied. Consequently, the interrupted veterans were compared only with nonveterans whose study was not interrupted. Care was taken, however, to base all comparisons on parallel stages of each student's academic career; thus, if sophomore grades were used as criteria and freshman grades as predictors for the veterans, grades for these same periods were used for the nonveterans.

In planning the analysis, it was thought likely that grades earned during the term just before the student entered the armed forces might not be typical, since the prospects of leaving college shortly might lead the student to slacken his efforts in academic work. It was also supposed that grades for the first term following the return to college might not be typical, partly because background information and study skills might need refreshing before a student regained his original effectiveness, and partly because students returning to college might be temporarily fired with an enthusiasm which would not persist. In three of the five groups studied, the first-term grade was used as the predictor and the fourth-term grade as the criterion, leaving out of consideration the doubtful second and third terms. The analysis of covariance method was again used, in order to compare the second-term sophomore grades of veterans and nonveterans, taking account of ability as indicated by grades earned in the first term of the freshman year.

Adams University. A relatively elaborate study was made of the group containing interrupted veterans at Adams University, in order to obtain a more complete picture of the relationships of a number of pertinent variables. In this study, the typical definition of groups was made: veterans completed one year before war service and one year afterward; nonveterans entered in the fall of 1945 and completed two consecutive years of college work. Students not enrolled in the arts and science curriculum, and veterans given advanced standing for college training during their service were excluded.

From the questionnaire, the following descriptive material was obtained: About 35 per cent of the returning veterans--almost as large a proportion as of entering freshman veterans at Adams--were under twenty years of age on resumption of their college careers; more of them had served at least two years of active duty (slightly over 50 per cent as compared with about 45 per cent for the entering freshman group); and again only 3 per cent were married. Virtually all of them, as might be expected, would have returned to college without the aid given by the GI Bill. As with the previous Adams group, about 60 per cent both of veterans and of nonveterans had fathers who were college graduates. The overwhelming majority, almost 90 per cent of veterans and about 95 per cent of nonveterans, were living in college dormitories.

The intercorrelations obtained for the two subgroups are shown in Table 37. The statistics above and to the right of the diagonal were obtained for the nonveteran subgroup, and those below the diagonal for the interrupted veterans.

The hypothesis that First-Semester College Average Grades would furnish a better prediction of Fourth-Semester Grades than tests plus high school standing was verified. For veterans, the Predicted Grade, which was the best of the ordinary predictors, correlated .51 with Fourth-Semester Average; the correlation of First-Semester Average with Fourth-Semester Average was .59. For the nonveteran subgroups, however, the difference was much less marked: the analogous correlations were .64 and .66.

It is of interest to note that the validity coefficients of the two Scholastic Aptitude tests against the fourth-term averages are rather similar for veterans and nonveterans, but the validities for Adjusted School Rank and

Table 37

INTERCORRELATIONS OF SCHOLASTIC APTITUDE TEST SCORES, ADJUSTED SCHOOL RANK, PREDICTED GRADE, AND FIRST AND SECOND-YEAR COLLEGE AVERAGE GRADES

Adams University, College of Arts and Science
(Veterans who completed one year before war service and one year after war service; nonveterans who entered in the fall of 1945 and completed two years.)

		Male Nonveterans (N=111)									
		SAT-V	SAT-M	Adjusted School Rank	Predicted Grade	1st-Sem. Average	2nd-Sem. Average	3rd-Sem. Average	4th-Sem. Average	Mean	S. D.
Interrupted Veterans (N=134)	SAT-Verbal		.33	.26	.72	.60	.53	.47	.46	559	107
	SAT-Mathematics	.28		.24	.55	.42	.23	.32	.22	574	93
	Adjusted School Rank	.31	.29		.62	.49	.41	.46	.48	74.7	8.2
	Predicted Grade	.67	.46	.73		.70	.63	.64	.64	74.5	7.3
	1st-Semester Average	.60	.34	.43	.63		.80	.72	.66	75.6	7.8
	2nd-Semester Average	.54	.22	.49	.66	.78		.73	.71	76.4	7.4
	3rd-Semester Average	.46	.39	.37	.55	.55	.52		.83	76.9	6.8
	4th-Semester Average	.48	.22	.31	.51	.59	.57	.80		78.0	6.7
	Mean	547	576	74.7	72.8	72.9	72.8	77.6	78.6		
	Standard Deviation	101	78	7.5	6.6	8.1	7.8	6.0	6.3		

Predicted Grade are noticeably lower after the interruption of training than during the initial college year. This finding is consistent with the previous observation that high school standing ordinarily has less predictive value for veterans than for nonveterans.

It is also worthy of note that the intercorrelations of term grades which cross the time of interruption (i.e., all except first-semester vs. second-semester and third-semester vs. fourth-semester) are considerably lower for veterans than for nonveterans. This suggests that military service or other related experiences has affected the academic performance of the veteran students.

The means for the veterans are slightly lower on most of the predictive measures, and their First- and Second-Semester Average Grades are lower than for nonveterans. The average grades for the third and fourth semesters, on the other hand, are higher for veterans. It will be noted that the mean Predicted Grade for veterans was 72.8 and the mean First-Semester Average was almost the same: 72.9. The nonveterans exceeded the prediction slightly more; the predicted mean grade was 74.5 and the mean of the First-Semester Average Grades was 75.6. In the second term, the veterans' mean was practically unchanged, while the nonveterans' mean grade increased slightly. There is then some slight evidence for believing that the anticipation of being drafted did lower the relative achievement of veterans to some extent.

The analysis of covariance results, comparing the regressions of Fourth-Semester Grades on First-Semester Grades for interrupted veterans and ordinary nonveterans, are shown in Table 38. As has previously been observed, the veterans on the average earned lower grades than nonveterans in the first semester of the freshman year and higher grades in the second semester of the sophomore year. The hypotheses of equal errors of estimate and equal slopes are not disproved, but the intercepts of the regression lines are found to be significantly different at the 1% level. The difference, allowing for differences in ability as measured by First-Semester Grades, amounts to 1.92 on the hundred-point grading system used at Adams. In error of estimate units the difference is .38; 65 per cent of the interrupted veterans excel the average nonveteran in Fourth-Semester Grade when adjustment is made for ability differences as measured by First-Semester Average Grade.

This result is particularly striking in view of the results previously reported for the freshman veteran and nonveteran students at Adams; for the freshmen, no significant difference was found, although a relatively small difference would have been significant because so many students were included in the analysis. In the freshman group, only 52 per cent of the veterans excelled the average nonveteran.

Stewart University. At Stewart, the only variables taken into consideration were the average grades earned during the first four semesters of college work. As at Adams, the study involved a comparison of nonveteran students with veterans who had completed two full semesters of college work in the arts and science college, who were interrupted for military service, and who

Table 38

COMPARISON OF AVERAGE FOURTH-SEMESTER GRADES EARNED BY INTERRUPTED VETERAN AND UNINTERRUPTED NONVETERAN MALE STUDENTS

Adams University, College of Arts and Science
(Veterans who completed one year before war service, one year after war service; nonveterans who entered in the fall of 1945 and completed two years.)

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with: First-Sem. Avg. Grade	Correlation with: Fourth-Sem. Avg. Grade	Mean	SD	N
First-Semester College Average Grade	MV MN		.59 .66	72.9 75.6	8.1 7.8	134 111
Fourth-Semester College Average Grade	MV MN	.59 .66		78.6 78.0	6.3 6.7	134 111

Validity coefficient for combined group: .61

II. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.00474	1	Between .90 and .95
B. Equality of slopes	1.822	1	Between .10 and .20
C. Equality of intercepts	8.298	1	Less than .01

III. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	1.92
Advantage expressed in standard error of estimate units	0.38
Per cent of veterans excelling the average nonveteran	65
Level of significance of difference (from IIC above)	1%

subsequently completed the two semesters of the sophomore year following their return from military duty. The nonveterans chosen for comparison entered in the fall of 1945, and completed two full years of college work. Transfer students and students given advanced standing for military training were eliminated. The predictor used was the First-Semester Average Grade, and the criterion was Fourth-Semester Average Grade. The grading system involved seven categories which were given the values of 7 to 1 for purposes of analysis.

Additional descriptive material is available from the questionnaires: Returning veterans at Stewart were older than the comparable group at Adams, only about 20 per cent being under twenty years of age. Likewise they had served longer tours of duty; nearly 80 per cent had had two years or more of active duty. About 5 per cent of veteran sophomores at Stewart were married. A larger proportion of fathers who had graduated from college was reported than for any other group in the study; 75 per cent of the veterans and 70 per cent of the nonveterans fell into this category. All of the nonveterans and most (just under 90 per cent) of the veterans were living in college dormitories; about 10 per cent of the veterans lived in apartments or houses which they rented or owned.

The intercorrelations, means, and standard deviations of the four semester average grades for nonveterans and interrupted veterans are shown in Table 39. The intercorrelations are uniformly lower for veterans than for nonveterans, but the differences are especially large for First-Semester vs. Third-Semester and Second-Semester vs. Third-Semester Average; the correlations are much lower for the interrupted veterans than for the nonveterans, presumably because of influences related to the period of war service. It is interesting to note, however, that the correlations of First- and Second-Semester Averages with Fourth-Semester Average, which also bridge the period of interruption for veterans, do not show nearly as great a difference.

The means of veterans' grades are lower for both first and second semesters, but higher for third and fourth semesters than the grades of nonveterans. Both subgroups show a decrease in mean grade from the first semester to the second, and the difference is nearly the same for both subgroups. Apparently, either the anticipation of induction did not result in a let-down for the veterans, or the let-down was equally influential during both terms of the freshman year.

The magnitude of the intercorrelations between adjacent semester averages suggests that the grades are reasonably reliable.

Turning to Table 40, it will be seen that the correlations between the two semester grades employed as predictor and criterion were high: .67 for veterans and .68 for nonveterans. The nonveteran subgroup earned a higher mean First-Semester Average Grade, while the interrupted veteran subgroup was superior with respect to Fourth-Semester Average Grade. The analysis of covariance shows that differences in errors of estimate and regression slopes are not significant, while the difference in intercepts of the regression lines is significant at the 1% level.

Table 39

INTERCORRELATIONS OF FIRST AND SECOND-YEAR COLLEGE AVERAGE GRADES

Stewart University, College of Arts and Science

(Veterans who completed one year before war service and one year after war service; nonveterans who entered in the fall of 1945 and completed two years.)

		Male Nonveterans (N=70)					
		1st-Sem. Average	2nd-Sem. Average	3rd-Sem. Average	4th-Sem. Average	Mean	S. D.
Interrupted Veterans (N=55)	First-Semester College Average		.79	.73	.68	5.04	.99
	Second-Semester College Average	.74		.77	.72	4.91	.85
	Third-Semester College Average	.50	.46		.77	4.94	.92
	Fourth-Semester College Average	.67	.64	.70		5.13	.82
	Mean	4.88	4.77	5.29	5.38		
	Standard Deviation	.86	.95	.71	.68		

Table 40

COMPARISON OF AVERAGE FOURTH-SEMESTER GRADES EARNED BY INTERRUPTED VETERAN AND UNINTERRUPTED NONVETERAN MALE STUDENTS

Stewart University, College of Arts and Science
(Veterans who completed one year before war service, one year after war service; nonveterans who entered in the fall of 1945 and completed two years.)

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with: First-Sem. Avg. Grade	Correlation with: Fourth-Sem. Avg. Grade	Mean	SD	N
First-Semester College Average Grade	MV		.67	4.88	.86	55
	MN		.68	5.04	.99	70
Fourth-Semester College Average Grade	MV	.67		5.38	.68	55
	MN	.68		5.13	.82	70
Validity coefficient for combined group:			.65			

II. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	1.756	1	Between .10 and .20
B. Equality of slopes	0.0489	1	Between .80 and .90
C. Equality of intercepts	11.104	1	Less than .01

III. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.32
Advantage expressed in standard error of estimate units	0.57
Per cent of veterans excelling the average nonveteran	72
Level of significance of difference (from IIC above)	1%

The difference in intercepts is .32, about one-third of a grade unit. In standard error of estimate units, the advantage of the veteran subgroup is .57; 72 per cent of the veterans exceed the average nonveteran in Fourth-Semester Grades when appropriate allowance is made for differences in First-Semester Grades.

Eastern City University. At Eastern City, the analysis was concerned only with First- and Fourth-Semester College Average Grades in arts and science. The groups studied were defined in the same manner as at Adams and Stewart. Uninterrupted nonveterans who entered in 1945 and who completed the sophomore year comprised the nonveteran subgroup; the interrupted veterans completed the freshman year before military service and the sophomore year after military service.

The questionnaires provide the following additional information: About 25 per cent of the returning veteran sophomores were under twenty years of age; approximately 55 per cent served two or more years of active duty; and only 3 per cent were married. In the latter two respects this group resembled that of veteran sophomores at Adams. With respect to father's education the sophomores at Eastern City diverged widely from the two previously discussed groups; only 1 per cent of veterans and about 5 per cent of nonveterans reported that their fathers had graduated from college. Living arrangements, too, differed; while the earlier discussed groups tended to live in college dormitories, nearly all of the Eastern City sophomore students lived at home or with close relatives.

For the analysis of covariance, First-Semester Average Grade was used as the predictor; Fourth-Semester Average Grade served as the criterion. The grading system involved five categories having values +2 to -2. Transfer students and students enrolled for fewer than twelve credits in any of the four semesters were eliminated.

The relationship between First- and Fourth-Semester Grades was not as marked at Eastern City as at Adams and Stewart; the correlations were .49 and .60 for the two subgroups, as shown in Table 41. A similar pattern of mean grades was found, however; the nonveterans were higher for First-Semester Grades and the veterans higher for Fourth-Semester Grades. The results of the analysis of covariance are also similar to that of the other two institutions. The hypotheses of equal standard errors and equal slopes are not disproved, while the difference in intercepts is found to be significant at the 1% level. The difference amounts to .29 in grade units or .59 in standard error of estimate units. Seventy-two per cent of the interrupted veterans are found to exceed the average nonveteran student; it will be recalled that the same figure was found at Stewart.

Midwest Technological University, College of Engineering. At Midwest Tech, the nonveteran comparison group was composed of prewar students rather than a postwar group as in the three studies just discussed. In this study, it was possible to increase the size of the interrupted group considerably by introducing some flexibility into the defined pattern of interruption. In the three studies just discussed, the interruption occurred between the

Table 41

COMPARISON OF AVERAGE FOURTH-SEMESTER GRADES EARNED BY INTERRUPTED VETERAN AND UNINTERRUPTED NONVETERAN MALE STUDENTS

Eastern City University, College of Arts and Science
(Veterans who completed one year before war service, one year after war service; nonveterans who entered in the fall of 1945 and completed two years.)

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with: First-Sem. Avg. Grade	Correlation with: Fourth-Sem. Avg. Grade	Mean	SD	N
First-Semester College Average Grade	MV		.49	0.19	.68	70
	MN		.60	0.29	.65	99
Fourth-Semester College Average Grade	MV	.49		0.57	.58	70
	MN	.60		0.33	.60	99
Validity coefficient for combined group:			.53			

II. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.357	1	Between .50 and .70
B. Equality of slopes	1.374	1	Between .20 and .30
C. Equality of intercepts	13.779	1	Less than .01

III. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.29
Advantage expressed in standard error of estimate units	0.59
Per cent of veterans excelling the average nonveteran	72
Level of significance of difference (from IIC above)	1%

second and third semesters. At Midwest Tech a veteran whose college career was interrupted at any time after the second quarter and before the seventh quarter was considered to fall within the defined pattern, provided that he completed at least eight quarters. As in the other studies of interrupted veterans, students who were given advanced standing for college training received as members of the armed forces were excluded. The nonveterans entered in the fall of 1939 and completed eight quarters of work; they were, of course, not interrupted. Transfer students and students who changed divisions within the university during the eight quarters were excluded from the study. Students who enrolled for fewer than 10 hours of work in any quarter or fewer than 12 hours in the first, second, or eighth quarter were also excluded.

A summer term counted as a regular quarter, provided the student was registered for twelve or more credit hours. Students were also rejected if they had not taken freshman mathematics or if they lacked a record of high school standing. The same procedures described here apply to Midwest Tech College of Agriculture students; the study of the agriculture students will be described in the following section.

An analysis of questionnaire data (which could only be obtained for veteran students, since the nonveteran group to which they were equated had completed its college study long before the questionnaire administration) revealed the following: This group was older than any previously discussed (the entire group was at least twenty years old upon returning to college after service); the aggregate tour of duty was longer than for any other group in the study (fully 95 per cent had served at least two years); and they included the highest proportion of married students (almost half the group). About 20 per cent of these interrupted veterans reported that their fathers had graduated from college. As with other Midwest Tech groups, housing arrangements were varied; the largest number, nearly 40 per cent, owned or rented a house or apartment; the next largest group, 20 per cent, lived in fraternity houses.

In the analysis of the data, First- and Second-Quarter College Average Grades were pooled and used as a single predictor; Eighth-Quarter Average Grades were used as the criterion. The results of the analysis are shown in Table 42. The validity coefficients tend to be somewhat lower than were found for the studies involving interrupted veterans at Adams and Stewart, probably because the criterion grades were earned at a time which is more remote from the predictor grades. The veterans were again found to earn lower grades during the initial two quarters (the predictor) than the nonveterans; on the Eighth-Quarter Grades (the criterion) the relative position of the two groups is reversed. The errors of estimate and slopes of the regression lines are not significantly different. The difference in intercepts is also found to be within the range of chance expectancy; the difference amounting to only .11 grade units or .18 standard error of estimate units. Fifty-seven per cent of the interrupted veterans excel the average nonveteran. This engineering group at Midwest Tech is the only group among the five involving interrupted veterans where college achievement in relation to ability did not yield a statistically significant difference in intercepts.

Table 42

COMPARISON OF AVERAGE EIGHTH-QUARTER GRADES EARNED BY INTERRUPTED VETERAN AND UNINTERRUPTED NONVETERAN STUDENTS

Midwest Technological University, College of Engineering
(Veterans who completed two to six quarters before war service and two to six quarters after war service for a total of at least eight quarters; nonveterans who entered in the fall of 1939 and completed eight quarters.)

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with: 1 & 2 Quarter Avg. Grade	Correlation with: 8th-Quarter Avg. Grade	Mean	SD	N
First- and Second-Quarter College Average Grade	MV		.57	2.26	.72	140
	MN		.45	2.37	.64	215
Eighth-Quarter College Average Grade	MV	.57		2.43	.74	140
	MN	.45		2.38	.67	215

Validity coefficient for combined group: .50

II. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.0731	1	Between .70 and .80
B. Equality of slopes	1.496	1	Between .20 and .30
C. Equality of intercepts	2.640	1	Between .10 and .20

III. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.11
Advantage expressed in standard error of estimate units	0.18
Per cent of veterans excelling the average nonveteran	57
Level of significance of difference (from IIC above)	Not significant

Midwest Technological University, College of Agriculture. For Midwest Tech students of agriculture, the definition of the veteran and nonveteran groups and the plan of the analysis were in all respects parallel to those for the students of engineering described in the previous section. Questionnaire descriptive material likewise showed the two groups to be very similar, the agriculture veteran sophomores differing from the corresponding engineering group in no respect by more than 5 percentage points.

Results of the analysis for this group are shown in Table 43. For the interrupted veterans, the correlation of the predictor with the criterion is the same as that found for the parallel group of engineering students (.57). For the nonveteran subgroup, however, the correlation is considerably higher for the agriculture students (.62 as compared with .45 for nonveteran engineering students). The differences in means show the same trend as did the preceding groups involving interrupted veterans: the veterans earned lower grades on the predictor and higher grades on the criterion measure.

The analysis of covariance showed that the difference in errors of estimate is significant at only the 10% level, and that the difference in slopes is even smaller than would be ordinarily expected to arise by chance. The advantage of the interrupted veterans is found to be significant at the 1% level. The difference in grades, when the effect of ability as measured by First- and Second Quarter Grades is eliminated, amounts to .26 grade units, or half of the standard error of estimate. Thus 69 per cent of the interrupted veterans excel the average nonveteran at the Midwest Tech College of Agriculture with respect to Eighth-Quarter Grades when differences appearing in grades for the first two quarters are taken into account.

Summary. In all five comparisons of interrupted veterans with male nonveterans, the veteran subgroup was found to be superior to nonveterans in achievement relative to ability. In these five comparisons, ability was measured in terms of freshman college grades. In four of the five comparisons the difference was significant at the 1% level. The differences were generally greater in comparisons involving interrupted veterans than in the comparisons involving freshman students where ability was measured by tests and high school standing.

In all five of the studies it was noted that the interrupted veterans had lower mean scores for freshman grade than the nonveteran male students. This fact must be taken into account in interpreting the analyses of covariance results. For example, if the lower freshman grades are the result of a tendency to let down on effort in anticipation of being drafted, the effects of the interruption would be primarily a matter of depressing effectiveness before service rather than enhancing effectiveness after service.

In addition to the possibility that the freshman grades of the interrupted veterans were low because of a feeling that college work was unimportant in view of the war emergency, particularly since their college career might be interrupted before the end of the college year, there are other reasonable interpretations. One possibility is that there might have been a tendency for faculties to give higher grades in 1945, when the nonveterans

Table 43

COMPARISON OF AVERAGE EIGHTH-QUARTER GRADES EARNED BY INTERRUPTED VETERAN AND UNINTERRUPTED NONVETERAN MALE STUDENTS

Midwest Technological University, College of Agriculture
(Veterans who completed two to six quarters before war service and two to six quarters after war service for a total of at least eight quarters; nonveterans who entered in the fall of 1939 and completed eight quarters.)

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with:		Mean	SD	N
		1 & 2 Quarter Avg. Grade	8th-Quarter Avg. Grade			
First- and Second-Quarter College Average Grade	MV		.57	2.16	.63	57
	MN		.62	2.30	.60	106
Eighth-Quarter College Average Grade	MV	.57		2.62	.69	57
	MN	.62		2.44	.59	106

Validity coefficient for combined group: .57

II. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	2.901	1	Between .05 and .10
B. Equality of slopes	0.0000	1	Greater than .99
C. Equality of intercepts	9.255	1	Less than .01

III. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Male Veteran
Advantage expressed in grade units	0.26
Advantage expressed in standard error of estimate units	0.51
Per cent of veterans excelling the average nonveteran	69
Level of significance of difference (from IIC above)	1%

were freshmen, than in the period two or three years earlier when the veterans were freshmen. Another possibility is that selective factors of some sort were operating which tended to lower the means for the interrupted veteran subgroups who returned without advanced standing gained in the various college training programs sponsored by the armed services. This seems a likely possibility, since students who were known to have had college training while in the service were excluded from the study.

No direct evidence is available bearing on the hypothesis of a let-down in anticipation of being drafted except the slight suggestion from the separate semester means at Adams that there might have been a let-down in the second term: the second-semester mean grade increased slightly over the first-semester mean grade for nonveterans, while for veterans there was a slight decrease. A similar result was not found at Stewart, however. It would appear that if there was a let-down, it affected both terms of the freshman year to about the same extent.

Evidence from Eastern City and Stewart University records show that mean freshman average grade is rather stable from year to year, which casts doubt on the hypothesis of grades drifting upward. In addition, it has been shown that the relationships of the mean grades are the same at Midwest Tech, where the nonveterans entered in 1939, as at the other three institutions. The hypothesis of grades drifting upward over the year is not necessary to account for the differences at Adams. The percentile equivalents of semester averages were obtained, based on the entire class for that term; the percentile equivalents of the First- and Second-Semester Averages for the median interrupted veteran were about 35, while for the nonveterans the percentiles were about 55.

The most probable explanation of the lower freshman grades of the interrupted veterans is that selective factors were operating. Students with the best academic records are somewhat more likely to have been rejected in our editing procedure because they were retained in ASTP or V-12 college training programs or because they were selected for other types of military training which resulted in their being given advanced standing.

The Predictive Value of the American Council Psychological Examination and High School Standing for Veterans and Nonveterans

It may be profitable to consider the assembled data on the predictive value of the measures most frequently used in this study for forecasting college grades--total score on the American Council Psychological Examination and high school standing. Table 44 is a summary of the validity coefficients obtained for these predictors.

The validity coefficients for the ACPE showed considerable fluctuation from one subgroup to another, much of which is presumably ascribable to sampling error, since some of the subgroups are rather small. The coefficients range from .28 to .61, but the median correlation for the twenty-four subgroups of male students where ACPE total score was used is .47.

Table 44

CORRELATIONS OF AMERICAN COUNCIL PSYCHOLOGICAL EXAMINATION SCORES AND MEASURES OF HIGH SCHOOL STANDING WITH FIRST-YEAR COLLEGE AVERAGE GRADE

Group		Validity Coefficients						Measure of High School Standing Used	See Table No.:
		ACPE Total Score			H. S. Standing				
University	Curriculum	MV	MN	FN	MV	MN	FN		
Adams	Arts '46	--	--	--	.55	.60	--	Adjusted rank	3
Stewart	" '46	--	--	--	.53	.62	--	Adjusted rank	5
Douglas	" '46	.35	.55	.51	.52	.65	.46	Average grade	6,7
Harris	" '46	--	--	--	.49	.65	--	Rank	11
Miller	" '46	.41	.39	--	.43	.58	--	Rank	12
Evans	" '46	.51	.45	--	--	--	--		13
Western State	" '46	.46	.51	.45	.53	.59	.62	Average grade	15,16
Central State	" '46	--	--	--	.61	.61	--	Average grade	20
Central State	" '45	--	--	--	.33	.65	--	Average grade	--
Littletown State	" '46	.49	.34	--	--	--	--		22
Midwest City	" '46	.57	.29	--	--	--	--		24
Midwest Tech.	Engr '46	.60	.61	--	.62	.53	--	Average grade	26
Middle State	" '46	.42	.28	--	.51	.53	--	Rank	27
Midwest City	" '46	.45	.36	--	--	--	--		31
Southern Tech.	" *	.48	.41	--	--	--	--		32
Midwest Tech.	Agri '46	.52	.48	--	.56	.68	--	Average grade	34
Littletown State	Bus '46	.55	.57	--	--	--	--		36

*The group at Southern Tech. was composed of students who entered as freshmen in the fall of 1945 or the fall of 1946.

There is a slight tendency for the test to yield higher correlations with grades of male veterans than with those of male nonveterans; the median validity coefficients for veterans and for nonveterans respectively are about .48 and .43. In eight of the twelve groups, the validity was higher for veterans than for nonveterans, and in only four cases was the validity higher for nonveterans. It is apparent, of course, that an advantage for one type of group in eight out of twelve comparisons might readily arise by chance.

The correlation of high school standing with first-year grades varies from .33 to .68 in the twenty-two male veteran and nonveteran subgroups where it was employed as a predictor. The median validity coefficient is .57. The tendency for high school standing to yield higher correlations for nonveterans than for veterans has previously been mentioned. The median coefficient for veterans is .53 and for nonveterans .61. When the coefficients are compared in each of the eleven groups, the coefficient for the nonveteran subgroup is higher in almost every instance. So consistent an advantage (nine times out of eleven, with one tie) would be expected to arise by chance less than ten times in a hundred trials.

The universities which supplied information on high school standing used various measures of relative performance. The three types of measure employed may be designated as rank in class, adjusted rank in class, and average grade. Of these, average grade suffers from the disadvantage that different secondary schools use marking systems which diverge markedly in form. Rank in class overcomes this difficulty, and is presumably preferable to average grade. The various secondary schools may, however, differ greatly in the calibre of their students. In order to overcome this difficulty, adjusted rank in class provides for a system of corrections to the ranks on the basis of past experience with graduates of the various schools.

The results obtained by the use of various indices of high school success are summarized in Table 44. Direct comparisons of the validity coefficients for the different types of measures are seriously limited by the fact that some colleges use high school standing in selection while others admit all graduates of approved high schools. Students who had poor high school records were not admitted in any of the five groups where adjusted rank or rank in class were used; except for Douglas, such students were admitted in the groups where high school average was used.

Without a detailed analysis of the degree of selection which has taken place in the various universities, the relative merits of the different measures cannot be decisively appraised from these findings. On the basis of the findings for the male nonveterans, however, it may properly be concluded that each of the universities is utilizing high school records in a form which is quite effective as a predictor of first-year college grades for its own students.

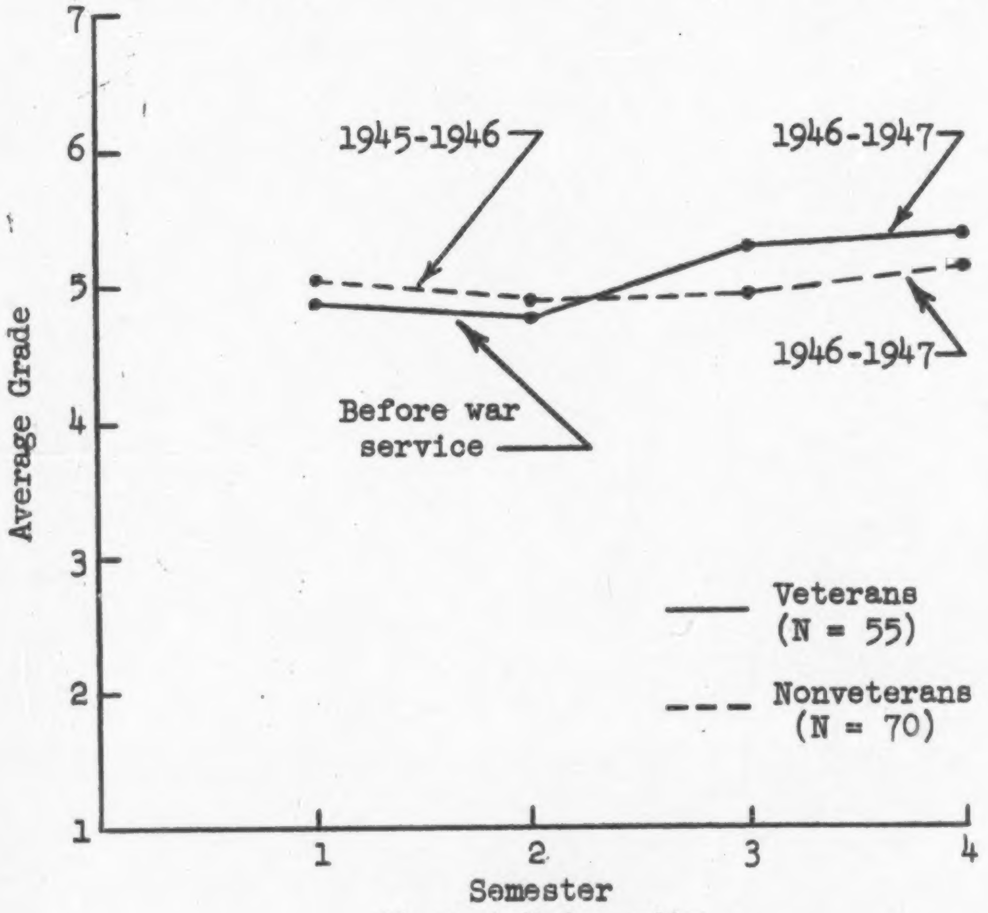
In six of the groups, validity data are available for both the ACPE and high school standing. For male veterans, the median validity of the test is .44 and of high school standing about .52 for these six groups, while the analogous medians for male nonveterans are about .50 and about .58. In none of the six possible comparisons for veterans does the test have a higher validity coefficient than high school standing, while for nonveterans the test is superior for only one group. The results thus show that a measure based on high school grades tends to be a better predictor of college success than the single test of scholastic aptitude, the American Council Psychological Examination. This result is in line with the findings of previous studies in which a single test was compared with a suitable index of high school achievement. It should be understood, of course, that these two predictors should be considered as joint members of a predictive team, rather than as competitors, in practical problems of prediction.

Trends in the College Grades of Veterans and Nonveterans

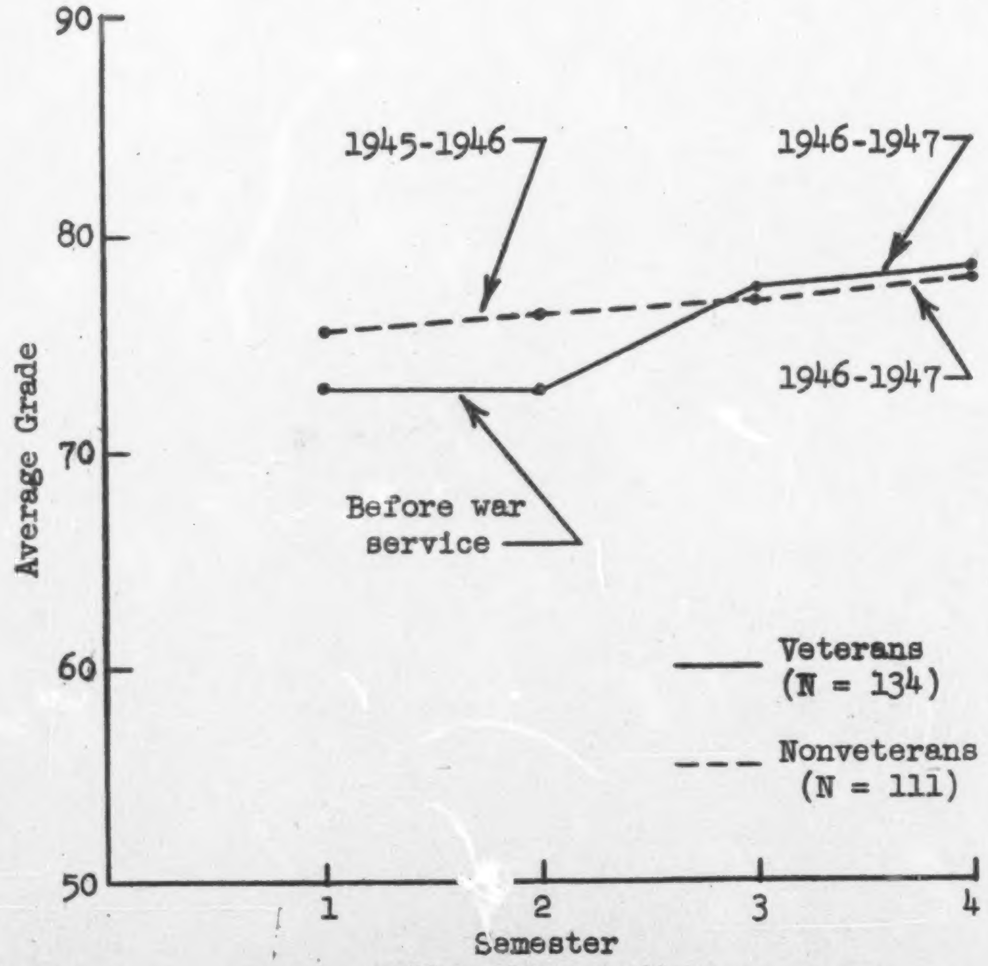
As has previously been mentioned, it is possible that veteran students are initially handicapped because of such factors as forgetting and deterioration of study skills, which result in temporary underachievement. Another possibility is that the veterans return to college fired with enthusiasm and good intentions which leads to temporary overachievement. It is also, of course, possible that both these effects occur, in the same student or in different students, and that they tend to cancel each other. It was accordingly thought worth-while to examine the trends in grades of veteran and nonveteran students.

Average grades by terms were obtained for six groups, including the groups at Adams and Stewart which involved interrupted veterans. The average grades earned in successive terms by veteran and nonveteran male students are shown in Figures 12 and 13. It will be noted that the entire scale of grades has been shown on the graphs for all universities except Adams. This fact should be kept in mind in interpreting the graphs, since the variation among average grades for large groups of students is not likely to be great relative to the complete scale of grades in use.

The results for interrupted veterans at Stewart and Adams, shown graphically in Figure 12, have already been described in the preceding discussions of the academic data. At Adams, the veterans do not show the slight increase in second-semester average grade which is present for the nonveterans, which suggests there may have been some let-down in effort in anticipation of being drafted. At Stewart, however, no such trend is found. Apparently any reduction in effort resulting from the imminence of withdrawing from college for military service had about the same effect on both semesters. At Adams, the line showing average grades for the semesters following return from war service is almost exactly parallel to the line for nonveterans. At Stewart there is some suggestion that the veterans did relatively better in the third term than in the fourth. The absence of any marked trend in the second-year mean grades of interrupted veterans suggests that forgetting or deterioration of study skills was not an important determiner of postwar achievement. If such deterioration did occur, it was apparently more than counterbalanced by influences favorable to success.

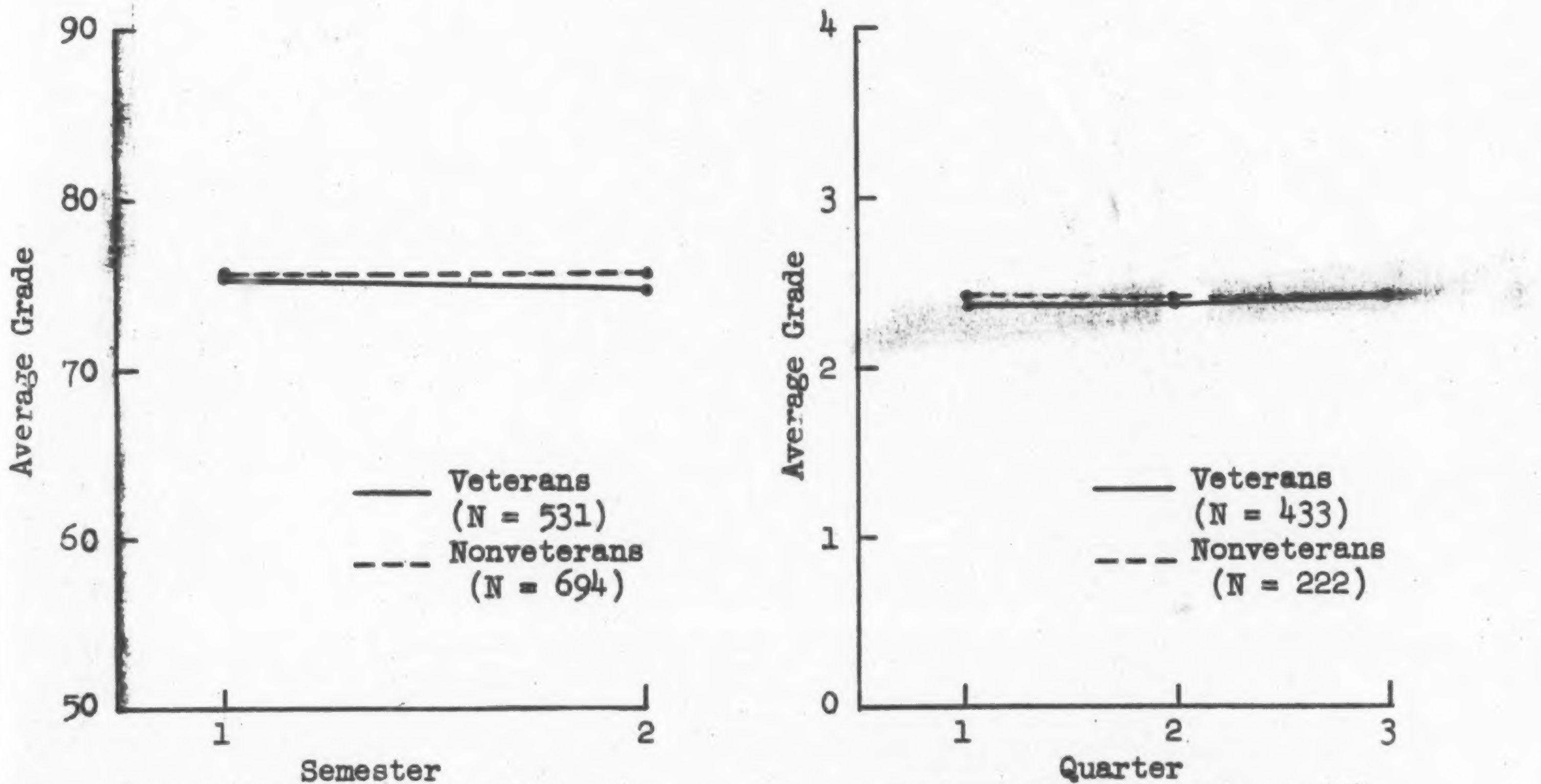


Stewart University



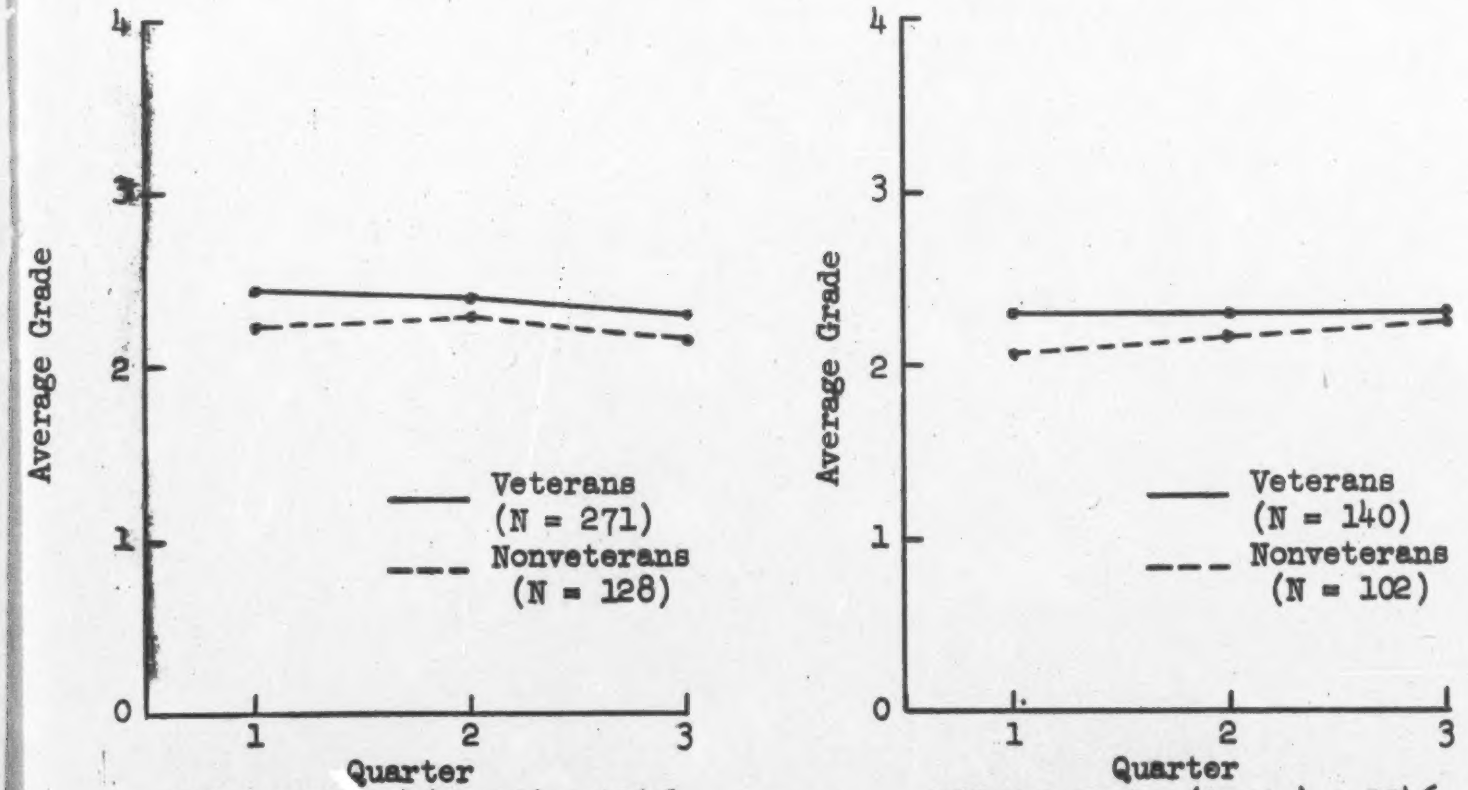
Adams University

FIGURE 12. TRENDS IN GRADES OF INTERRUPTED VETERANS AND UNINTERRUPTED NONVETERANS.



Adams (Arts) - 1946

Western State (Arts) - 1946



Midwest Tech. (Engr.) - 1946

Midwest Tech. (Agri.) - 1946

FIGURE 13. TRENDS IN GRADES OF VETERAN AND NONVETERAN MALE STUDENTS.

Mean term grades were computed for groups of veteran and nonveteran males who entered as freshmen in the fall of 1946 at three institutions--Adams, Western State, and Midwest Tech; at the latter institution, such data were available for both engineering and agriculture students. These means are shown graphically in Figure 13. The lines for veterans and nonveterans are nearly parallel in all four cases. At Midwest Tech there is a slight tendency for the difference between veterans and nonveterans to be greatest in the first of the three terms. There is again no consistent evidence that veterans are more handicapped at the start because of such factors as forgetting; if anything, the tendency is for veterans to do relatively better in the first term after war service than in subsequent terms.

Summary and Discussion

In comparing veteran and nonveteran students with respect to academic success, the twenty studies in which male veterans who entered college after their war service were compared with their nonveteran classmates provided the basic information.

In these twenty comparisons, it was found that nonveterans were superior to veterans of the same ability in only four instances; in none of the four was the difference greater than might reasonably be expected to arise by chance. In three of the comparisons in which the veterans excelled, the advantage of the veterans was so great as to be significant at the 1% level. In two additional instances, the difference was significant at the 2% level, and in one case the difference was significant at the 5% level. In a total of six of the twenty groups where veterans and nonveterans were compared, then, the difference in freshman grades, when the effect of ability is eliminated, favored the veterans to an extent which would be expected by chance fewer than five times in one hundred. In one other comparison, the veterans exceeded the nonveterans by a considerable amount; the significance of the finding cannot properly be evaluated, however, because the ability measures were related to freshman average grades differently for veterans and nonveterans. Among the twenty comparisons based on entering freshman students, we would expect, by chance, that the veterans would excel in ten. Actually, the veterans excelled in sixteen of the twenty comparisons. Such a result would be expected to arise by chance less than five times in one hundred.

On the whole, it may therefore be concluded that veteran students of the kind included in these studies tend to earn higher grades, in relation to their ability, than do nonveteran students. The actual magnitude of the difference is small, however. In terms of a grading system based on the letters A, B, C, D, and F it would amount to only a quarter or a third of a letter grade even in an institution where the difference was highly significant. In the most extreme case, the average difference would be equivalent to about the difference between a C+ and a C.

Another way of representing the amount of difference is in terms of the overlapping between frequency distributions of grades for veterans and nonveterans of equivalent ability. If the two distributions are exactly alike, 50 per cent of the veteran subgroup would excel the average nonveteran student. In the four cases where veterans were inferior to nonveterans of equal ability, the per cents of veterans excelling the average nonveteran were 39, 48, 49, and 50 (rounded). In the remaining sixteen groups, the per cents ranged from 52 to 76. In the median group about 56 per cent of the veterans excelled the average nonveteran student.

At one engineering college, course grades in drawing and mathematics were used as criteria as well as freshman average grade. Veterans were superior on all three criteria.

An important supplement to the twenty basic comparisons is a series of five studies in which veterans whose college careers were interrupted by war service were compared with nonveterans whose careers were not interrupted. In these groups, the veterans had completed at least two quarters of academic work as ordinary civilian students before war service, and after military service they returned to college and completed at least two more quarters of college work. The nonveterans were students who entered at a designated time and who completed the same total number of terms as the veterans. For these groups the problem was to determine whether sophomore grades (or junior grades for two of the groups) were higher for veterans or for nonveterans of equal ability, and the measure of ability which was used was freshman grades earned in college. In general, grades earned in the terms which for veterans just preceded and immediately followed war service were not used in the computations. In all five of these comparisons, veterans were found to be superior to nonveterans who earned equivalent freshman grades. The difference was significant at the 1% level in four of the five cases. The per cents of interrupted veterans excelling the average nonveteran ranged from 57 to 72 with a median of 69 per cent.

The interpretation of the differences found between veterans and nonveterans in these five groups is particularly difficult. At first glance, it would appear that the veterans had gained greater maturity and a capacity for more intensive and prolonged effort during their absence from the campus; accordingly, they showed a marked gain over their initial performance--in contrast to the relative stability of performance shown by a nonveteran group whose careers were not interrupted. Such an interpretation would overlook two important complications: first, the possibility that shifts in grading standards over a period of time might influence the results; and second, the fact that in all five groups the veterans earned lower freshman grades than did their nonveteran controls. The hypothesis that grading standards shifted is weakened by the fact that in three of the groups the veterans were compared with a postwar nonveteran group (students entering in 1945) while in the other two the nonveteran comparison group was a prewar group (students entering in 1939). The advantage of the nonveterans in their freshman grades constitutes a more serious problem. Among the hypotheses which may be advanced to account for this finding, two appear to be most plausible: first, the members of the veteran group, realizing that their academic careers were likely to be interrupted by war service, may have slackened their efforts; and second, the necessary exclusion from the comparisons of veterans who continued their academic careers in V-12 or ASTP may have removed a disproportionate number of superior students, and thus lowered the average in the remaining group. With these limitations in mind, it must be recognized that the findings are not as conclusive as the significance tests might indicate. The findings, in spite of the limitations, may properly be considered to favor the veteran group.

In addition to the comparisons of male veterans and male nonveterans, study was made of a number of problems which were considered pertinent to the interpretation of the findings or which were by-products of the plan of analysis followed in making the basic comparisons. These problems were studied in varying numbers of groups; no attempt was made, however, to exhaust the possibilities of the available raw data in seeking answers to them.

One question, studied in three groups, was the possible significance of academic load, as measured by the number of credit hours carried. In all three instances, it was found that veterans tended to take a slightly lighter load. This might merely be a reflection of the fact that veterans were not required to take physical education or military science. It was also found that correlations between work load and measures of ability and college achievement are consistently positive--students who take the heavier load tend to get the higher grades in college. This tendency was consistently found both for the male veteran subgroups and the male nonveteran subgroups. This finding tends to discount the hypothesis that veterans did better because of a reduced course load, although it does not provide an adequate basis for rejecting it.

Some interest attaches to comparisons of female students with each of the two male groups. The procedure used in comparing male veterans with male nonveterans was applied, in two universities, to these comparisons. At one university, the women students were found to be slightly superior in grades, relative to ability, than both the male veterans and male nonveterans; but the obtained difference was no greater than might reasonably be expected by chance. At the other institution, no comparison of grades in relation to ability for women students and male veterans could legitimately be made because the two subgroups differed significantly with regard to the standard error of estimate. Grades could be predicted from ability measures more accurately for the female subgroup. In this institution, the corresponding difference between women students and male nonveterans was practically zero.

It is important to study the relationship between the time when aptitude tests were taken by veterans and the scores which they earned. In two institutions where the College Entrance Examination Board Scholastic Aptitude Test was used, some veterans had applied for admission and were tested before leaving for war service and some were tested after discharge. This variable, date of testing, was correlated with all the measures of ability and college achievement. The correlations tended to be quite low, indicating that date of testing, within the range encountered in these studies, is of little importance. This finding is reassuring in the interpretation of the results, since in most of the groups the veterans were tested after war service, several years after high school graduation, while the nonveterans were tested a few months after graduation from high school.

As an essential part of the procedure followed in studying veteran-nonveteran differences, considerable attention was given to various predictors of academic success. Validity coefficients based on the total American Council Psychological Examination score were available for twelve groups. Another commonly used predictor of freshman grades was a measure of high school standing; such a measure was used as a separate predictor in eleven cases. In six groups both measures were used. The median validity coefficient found for the ACPE total score was .47; the correlation coefficients tended to be slightly greater for male veterans than for male nonveterans. The median validity of high school standing was .57, and this variable tended to yield higher correlations for nonveterans than for veterans. The median validity coefficient for veteran subgroups was .53 and for male nonveterans .61. A comparison limited to the six groups where both ACPE score and high school standing were used confirms the superiority of high school standing as a predictor of freshman grades.

It is pertinent to inquire whether any difference in outcome of analyses of covariance is apparent in the groups for which both high school standing and various test scores were used as compared with those groups for which only test scores were used. As it happened, there were ten groups of each type among the twenty groups of entering freshmen. The general outcome of this comparison is shown in Figure 14. The median value of the per cent of veterans excelling the average nonveteran is 56 in both sets. However, the range in per cent of veterans excelling the average nonveteran is 48 to 76 in the groups where high school standing was used, and the range is 39 to 66 in the groups where tests alone were used. This suggests that the inclusion of high school standing as a predictor is associated with findings which are slightly more favorable to the veteran group.

Finally, attention was given to possible trends in grades which veteran students earned in successive terms after war service. Examination of the mean grades of veterans and nonveterans shows no evidence that veterans were seriously handicapped at the beginning of the college work because of forgetting or deterioration of study skills nor that there was a period of initial enthusiasm which led to marked temporary overachievement. In four comparisons of this type, no clear indication of a consistent shift in differences of grades was found; it forgetting does play a role in grades earned by veterans immediately after their entrance to college, it is apparently counterbalanced by other factors such as a more enthusiastic approach to the study situation.

Per Cent of Veterans Excelling the Average Nonveteran	Predictors Used	
	High School Standing in Combination with a Test or Tests	A Test or Combination of Tests without High School Standing
78 or higher		
73 to 77	●	
68 to 72	x	
63 to 67	●●	●●
58 to 62		●oo
53 to 57	ooox	o
48 to 52	oo	ooo
43 to 47		
38 to 42		o
33 to 37		
28 to 32		
23 to 27		
22 or lower		

● Difference significant at or beyond 5% level

o Difference not significant

x Outcome of analysis ambiguous

FIGURE 14. DISTRIBUTION OF PER CENT OF VETERANS EXCELLING THE AVERAGE NONVETERAN WITH RESPECT TO ADJUSTED AVERAGE GRADE FOR THE TEN GROUPS IN WHICH HIGH SCHOOL STANDING WAS USED IN COMBINATION WITH A TEST OR TESTS AND FOR THE TEN GROUPS IN WHICH TESTS ONLY WERE USED.

RB-50-13

RESEARCH BULLETIN

ADJUSTMENT TO COLLEGE

A STUDY OF 10,000 VETERAN AND NON-VETERAN STUDENTS IN 16 AMERICAN COLLEGES

Chapter IV. Some Characteristics of Veteran Students.

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and

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Educational Testing Service

March 22, 1950

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Chapter IV

SOME CHARACTERISTICS OF VETERAN STUDENTS

This and the remaining chapters will be concerned with the results of the analysis of the items contained in the Student Opinion Questionnaire. Among these items is a set intended for veteran students only; they deal with certain background information on military service and its effect on ability to do college work. Certain of these items which were answered only by the veteran students will be discussed in the present chapter.

Interpreting the Results of the Questionnaire Analysis

Before discussing the results dealing with characteristics of veteran students, certain general questions regarding the interpretation of the questionnaire findings may well be considered. These comments regarding interpretation apply, of course, not only to the findings of the present chapter but to the following chapters as well.

A relatively detailed account of the plan followed in presenting the results of the questionnaire analysis is provided in the last section of Chapter II; the present discussion will be concerned with general considerations which may affect the interpretation of the findings to be presented.

As was observed in Chapter II, the primary emphasis in the discussion which follows will be upon the summarized results for twelve basic college groups. In interpreting the results which follow it is relevant to note that: (1) each group contained at least 75 veterans and 75 nonveterans who completed questionnaires; (2) each of twelve colleges and universities is represented once (and only once) in the group; and (3) each group is composed of students who entered college as beginning freshmen in the fall of 1946. There are nine groups which may be considered as liberal arts groups; the other three are engineering groups. Half of the groups represent privately-supported universities; the other half are state and municipal universities. Broad geographical regions are represented as follows: East, three; Middle West, seven; South, one; and Far West, one. On the basis of the classification used by President Walters in his enrollment surveys reported in School and Society, nine belong to the category of "university and large institutions of complex organization," two (Evans and Harris) are "colleges of arts and sciences," and one (Midwest Tech) is an "independent technical institution." All but three had chapters of Phi Beta Kappa; of these three, two had chapters of Sigma Xi. Seven of the twelve are located in cities of more than 100,000 population; the remaining five are located in small cities or college towns. All but Adams and Stewart are coeducational.

Perhaps the first question which arises in interpretation is whether or not substantial bias has arisen from incomplete returns on the questionnaires. Among the twelve groups which receive most of the attention in the discussion which follows, adequate evidence was available to indicate that 80 per cent or more of the students belonging to the defined group had completed questionnaires in eight of the groups--in several of these, the returns were close to 100 per cent. In four groups considered too important from the viewpoint of securing adequate diversity to omit from the basic twelve groups, somewhat less confidence can be placed in the results. In one group, Western State, the per cent returns for veterans was 63; for nonveterans, it was 66. Examination of the Adjusted Average Grades of the students at Western State who returned questionnaires suggested that they were overachievers to a slight degree. (They were less than one tenth of a standard deviation above the total group.) In three other basic groups, the procedure for collecting data did not permit an adequate estimate of the per cent returns. These groups were Central State, Evans, and Miller. It is accordingly necessary to interpret the results for these groups with caution. The inclusion of these four groups in the basic twelve was considered justifiable on the assumption that the basic tendencies in these four groups would contribute substantially to the over-all picture, while minor biasses in the detailed results for these groups would have little effect on the general results. Examination of the questionnaire findings for these groups indicated that the likelihood of a serious bias in the returns of any of the four groups was negligible.

It will be noted that both positive and negative results are treated fully in the ensuing pages. No apologies are made or are needed for this procedure; in some respects it is as important to know that veterans and nonveterans are alike in a certain way as to know they are different, or to know that a particular item is unrelated to AAG as to know that it is related. An objective of this study was to determine whether or not veteran-nonveteran differences could be accounted for by differences in background, attitudes, and experiences as identified through questionnaire responses. It was not expected that all the hypotheses tested would result in positive findings; negative or suggestive findings may prove to be just as useful to future investigators of noncognitive factors in relation to college achievement.

Comments regarding interpretation of the questionnaire results will ordinarily be limited to the findings for the twelve basic groups which are shown in the figures. If results for other groups depart considerably from those of the twelve groups, this fact will be noted in the discussion of the item.

The results for those questionnaire items dealing with the background and attitudes of veteran students will be described in the balance of this chapter. These items differ from most questionnaire items in that they were answered by veteran students only; hence no comparison with nonveteran students can be made, and the graphs contain points pertaining only to veteran subgroups.

Aspects of Service Experience

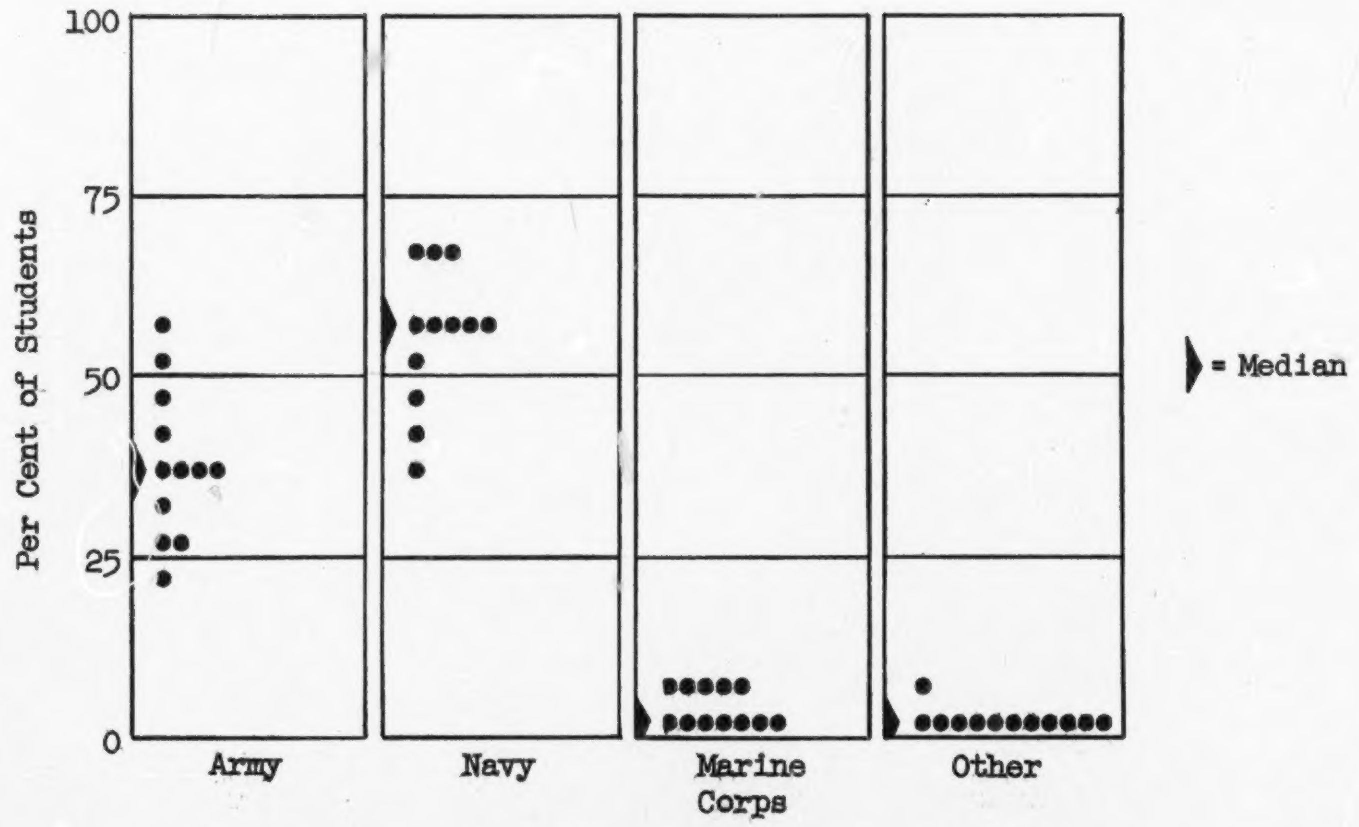
In this section, the results of the analysis of various items dealing with some of the more objective and factual aspects of service experience will be considered. Factors in service experience such as branch of service, length of service, overseas service, and rank will be dealt with in order to find what characterized the veteran students in the various college groups and to what extent the attribute measured by each item was associated with Adjusted Average Grade.

Branch of Service. Questionnaire Item 8(a) asks, "In which of the following did you serve?" For purposes of analysis the veterans were divided into four groups: (A) Army, (B) Navy, (C) Marine Corps, and (D) Coast Guard, Merchant Marine, and Field Services. Each of the three groups combined in D was quite small. The results of this item will indicate whether a classification of veterans with regard to branch of service is related to the achievement relative to ability of veteran students. The general results are shown graphically in Figure 15; the detailed findings are shown in Appendix Table 8(a).

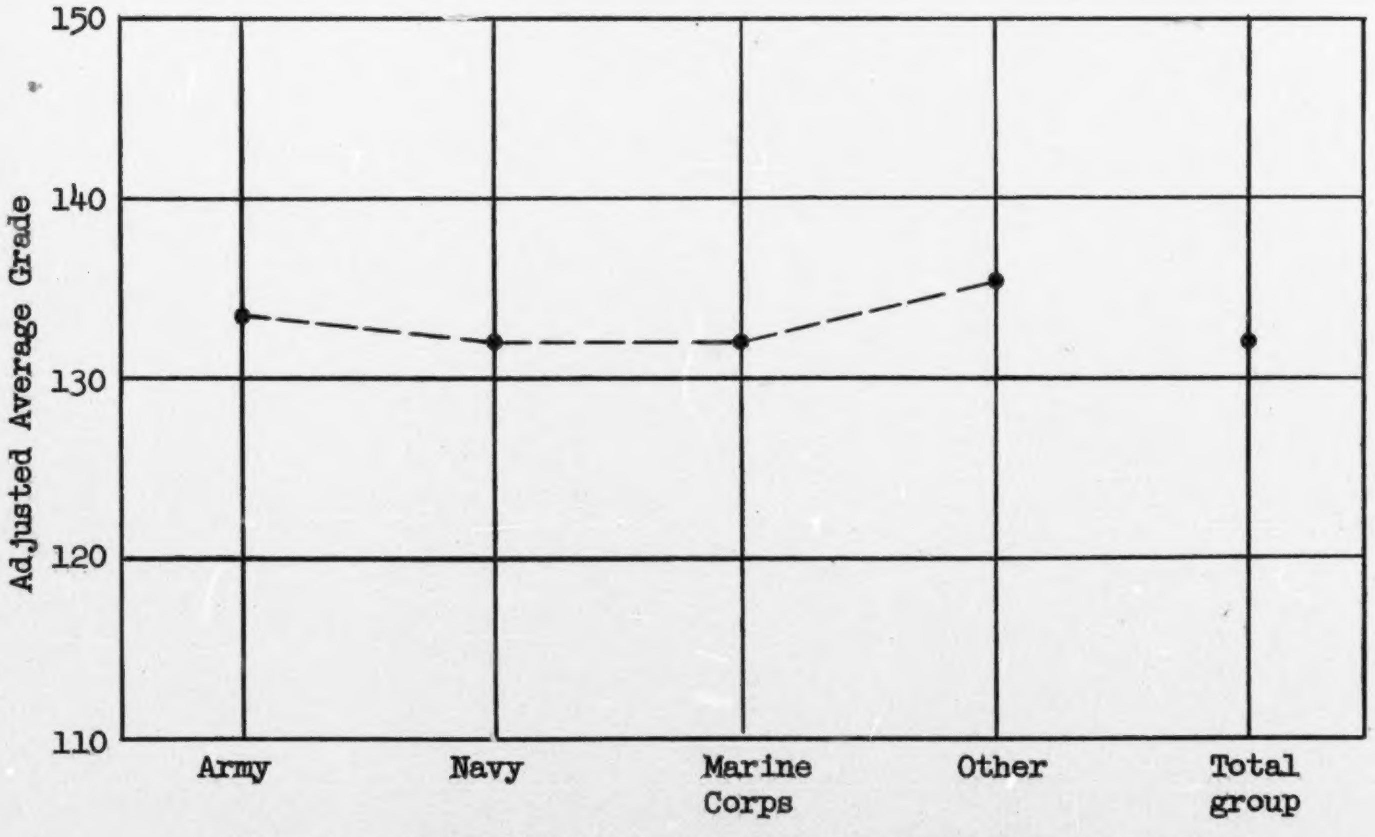
> It was found that the great bulk of the veterans in this study had served in the Army or the Navy, but in general a greater proportion of the veterans who entered college as freshmen in 1946 came from the Navy than from the Army. The reverse is true for the interrupted veterans. There was no clear tendency for veterans who had served in the Army, or any other branch of the service, to earn higher grades in relation to ability than students from other branches of the service.

The proportion of veterans who served in the Army varied from about one-fifth to a little over half in the twelve groups, and the proportion serving in the Navy varied from about one-third to two-thirds. In the median group, a little less than 40 per cent of the veterans served in the Army and about 55 per cent served in the Navy. Comparatively few of the veterans had served in the Marine Corps and only a scattering in the Coast Guard, Merchant Marine, and Field Services.

The generally larger proportion of veterans in the basic twelve groups who had served in the Navy is interesting in view of the fact that the Army was decidedly larger than the Navy during the recent war. As of June 30, 1945, (according to Statistical Abstract of the United States, 1948) the Army contained more than twice as many men as the Navy. Since the rate of decrease from 1945 to 1946 was somewhat greater for the Army than for the Navy, almost three times as many veterans came from the Army than from the Navy in the period from June 30, 1945, to June 30, 1946. It is apparent that the twelve groups in this study are not typical of the general veteran population with regard to branch of service. Appendix Table 8(a) reveals that the interrupted veterans (who were older) came more often from the Army than the Navy. It appears that the Navy contributed a much larger share of the veterans who entered college in 1946 than did the Army, relative to the number of veterans from each of these branches of the service. The reason is not clear, but it may be related to different recruitment policies in the Army and Navy.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 15. BRANCH OF SERVICE: ITEM 8(a)

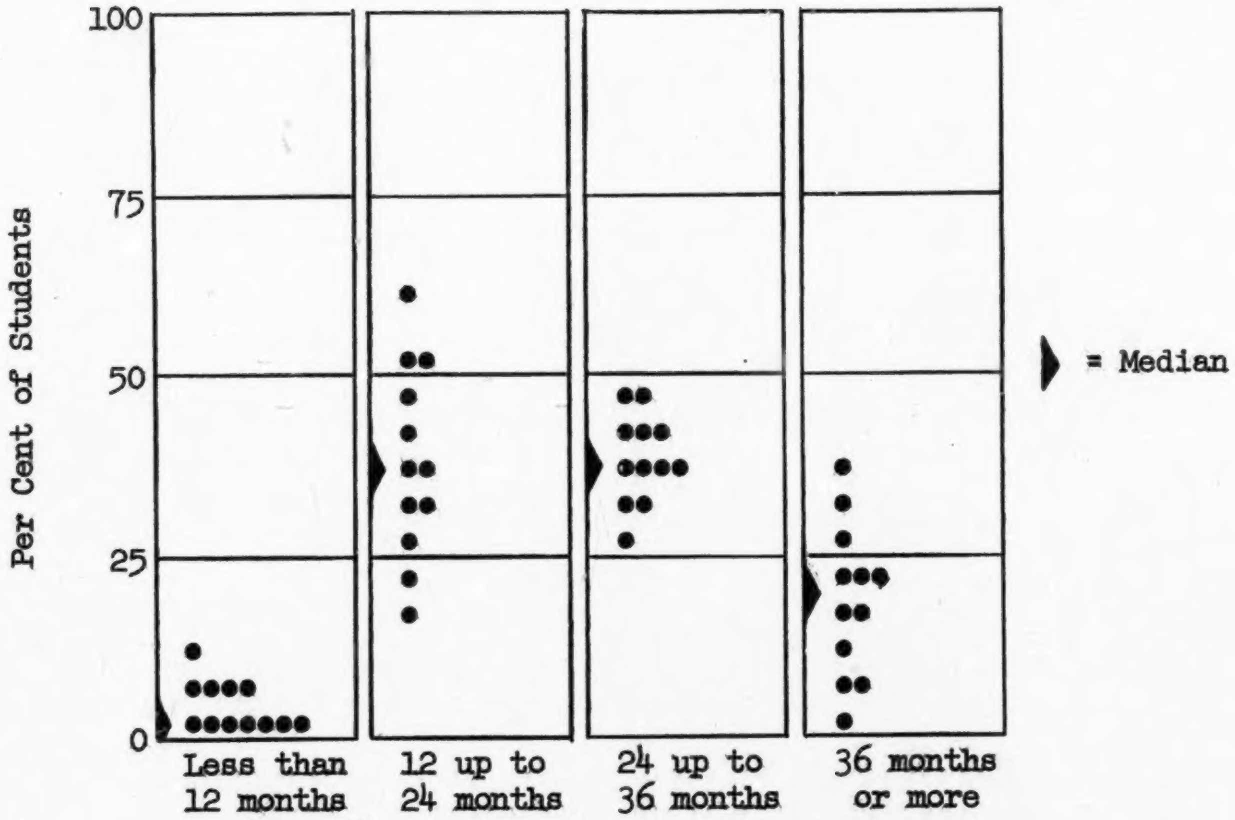
The median group with Army service earned a mean AAG of about 135, while for the Navy and the Marine Corps the corresponding figures are slightly lower. (The small proportion of students in the other services showed a median value slightly higher than that for the Army.) Differences in mean AAG favored the Army over the Navy in no more of the groups than would be expected by chance. The F-test showed one category mean which was significant at the 1% level: veterans at Evans who had served in the Army earned AAG's which were significantly higher than those of veterans from other branches of the service. It is to be expected, however, when a large number of significance tests are made, that by chance some of the comparisons will be found to be significant. Since sixty-four tests were made, it might reasonably be expected that one of the comparisons would be significant at the 1% level, even if no relationship existed.

Length of Service. Item 8(b) asks, "How many months were you in service (on active duty, whether in training or in duty assignments)?" This question was included in order to test the hypothesis that those veteran students who served the longest, and therefore had the greatest opportunity to be affected by service experiences, would show a greater tendency to overachieve than those veterans whose length of service was brief. For analysis, the veterans were classified as follows: (A) less than one year, (B) one to two years, (C) two to three years, and (D) three years or more of service. The results are shown in Figure 16.

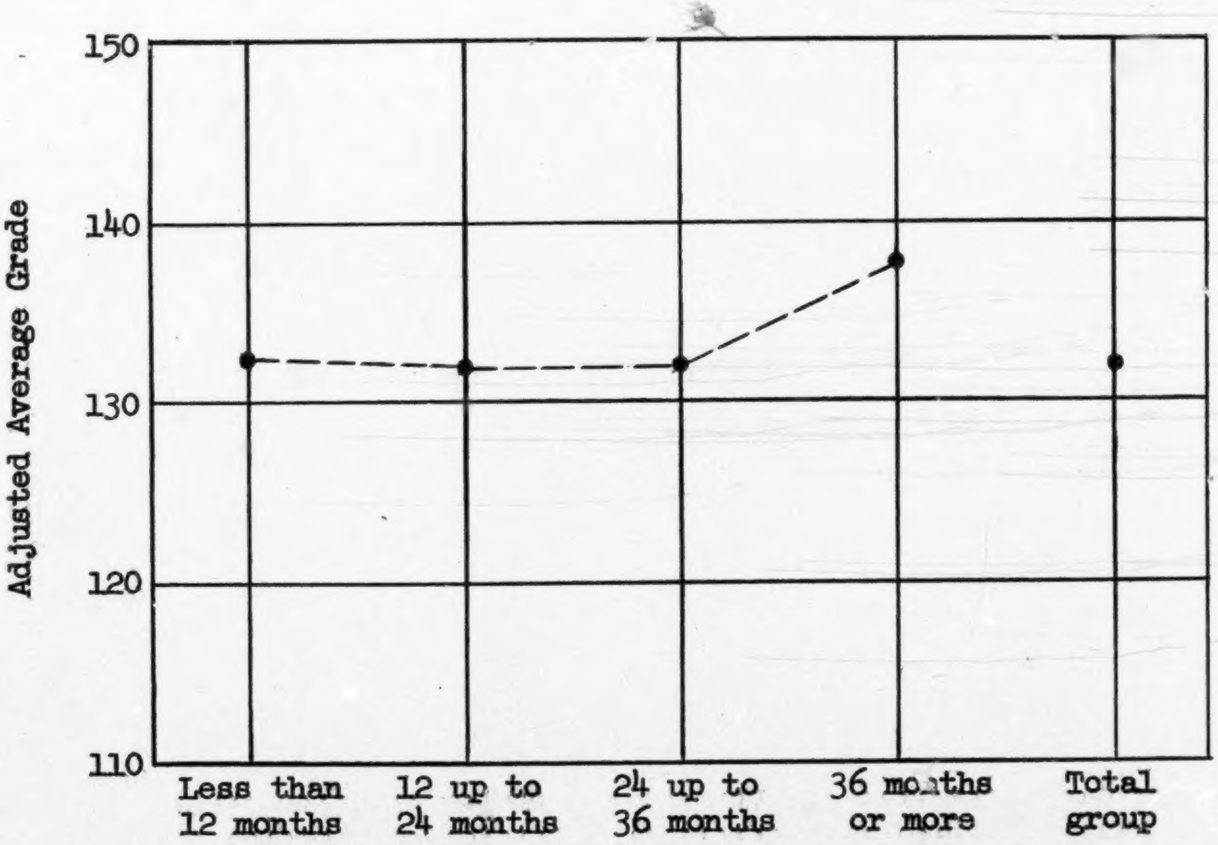
> Most veterans in the study were in service for from one to three years. There is a very slight and generally insignificant tendency for veterans who served longest to overachieve more than veterans whose length of service was brief.

Categories B and C obtained the most frequent responses, indicating that the length of service was typically between one and three years. Among the twelve basic groups, three years or more of service was reported most frequently by the groups of engineering students at Midwest City. Groups which included students who entered in 1945 (Central State and Taylor) and the interrupted veterans at Midwest Tech were also high on this category. Fewer than 10 per cent of the veterans entering in 1946 at Stewart, Adams, and Douglas had served three years or more.

For students having three years or more of service, the median value of the twelve mean AAG's is slightly higher than for students having had less military service; otherwise, no trend is discernable. In only one of the basic groups, Western State, is a difference found which is significant at the 1% level; here the "three-year" veterans earned a mean AAG of about 150, which is significantly greater than the mean AAG for veterans choosing other categories. In nine of the twelve groups the mean AAG for veterans who served three years or more is greater than the mean AAG for all veterans; however, this finding cannot be regarded as statistically significant.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 16. LENGTH OF SERVICE: ITEM 8(b)

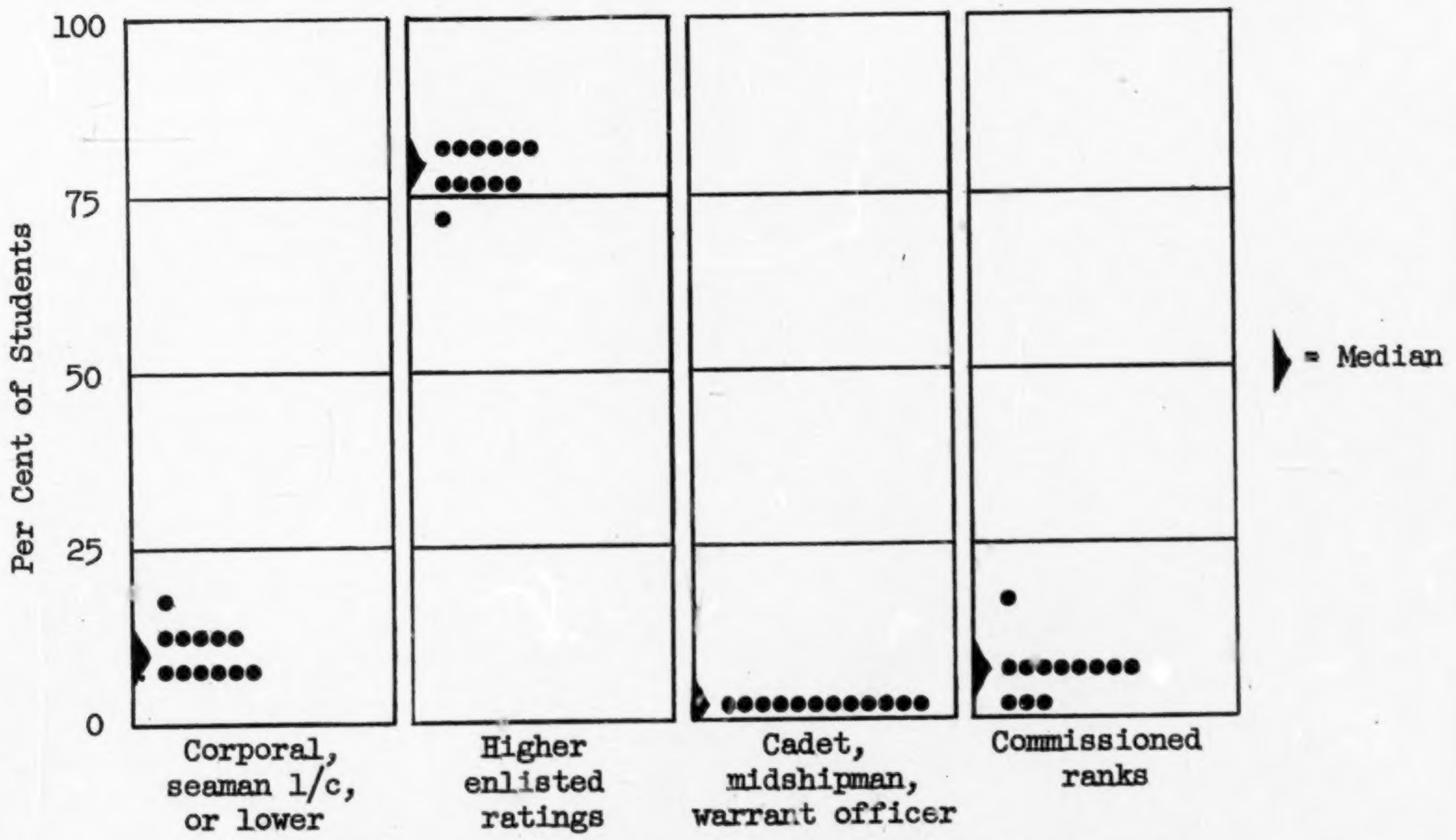
Highest Rating, Rank, or Grade. The results for Item 8(c), "What was the highest rating, rank, or grade you held while in service?" are shown in Figure 17. This was a free-answer item; the categories used in classifying the responses are shown in Appendix Table 8(c).

> The great majority of the veterans in this study had held enlisted ratings of sergeant or petty officer third class and higher. There was some tendency, although not a significant one, for higher rank to be associated with higher AAG. These results are consistent with the hypothesis that characteristics leading to promotion in a military organization are to some extent the same as those influencing overachievement in college.

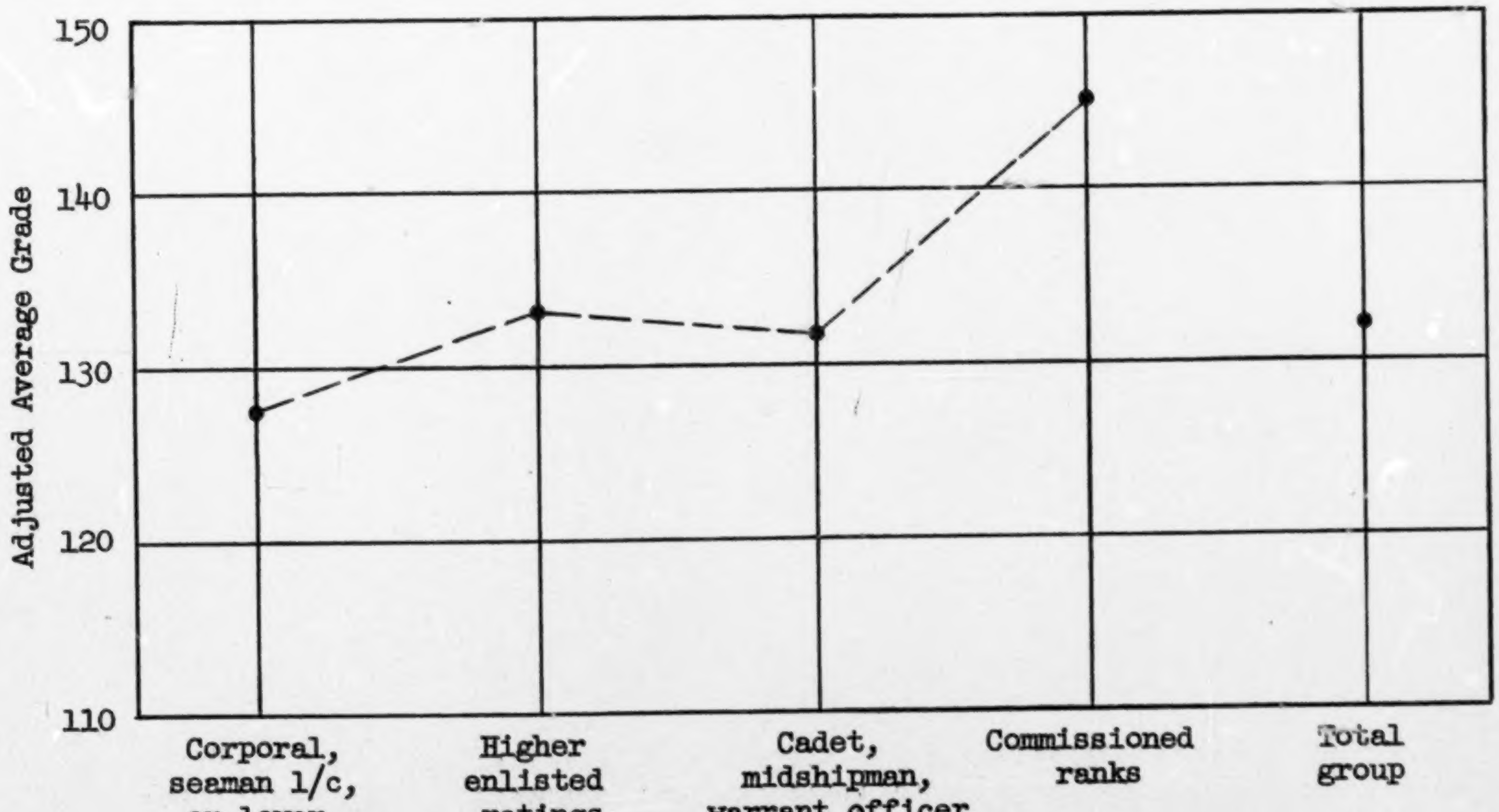
The analysis of the item shows that in the twelve basic groups the great majority of veterans were in the higher enlisted brackets: i.e., sergeant, or petty officer third class, or higher. The frequencies in this category typically ranged between 70 and 85 per cent; in three other groups, however, the per cent was much lower. The Central State 1945 group had only about 50 per cent in the higher enlisted ratings, and had an unusually large per cent in the lower commissioned ranks (up to major and lieutenant commander). The same tendency characterized the interrupted veterans both in engineering and agriculture at Midwest Tech, where the percentages in the higher enlisted ratings were about 50 and 30 and the percentages in the lower commissioned ranks were about 40 and 55 respectively. The higher proportions of commissioned officers tended to appear in groups which entered college in 1945 or earlier (the interrupted veterans). Otherwise only about 5 per cent of the students had held commissions. No veteran was found among these students who had held rank of lieutenant colonel, commander, or higher. The percentages in the lower enlisted ratings ranged from about 5 to 20 per cent for most groups; but at Eastern City almost 30 per cent of the interrupted veterans were in this category.

For students who had held lower enlisted ratings, the median value of the mean AAG's was somewhat less than 130, while for the commissioned officers the mean AAG for the median group was 145. The mean AAG of veterans in the lower enlisted ratings was lower than the general average for eight of the twelve groups, and for the commissioned group it was higher for eight of the twelve groups. The veterans in the two other categories tended to be intermediate, so far as the medians are concerned. There does seem to be a slight tendency for Adjusted Average Grade to be positively related to rank held in military service. When significance tests were made comparing each category against the other three categories combined, only one of forty-eight such comparisons for the twelve basic groups turned out to be significant at the 1% level; the relationship between rank in the armed services and AAG is generally insignificant.

Duty Outside the United States. Item 8(f) asks, "Did you serve outside the United States, either during or after hostilities?" The response categories are: (A) no service outside U. S., (B) served on sea duty, and (C) served



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 17. HIGHEST RATING, RANK OR GRADE HELD WHILE IN SERVICE: ITEM 8(c)

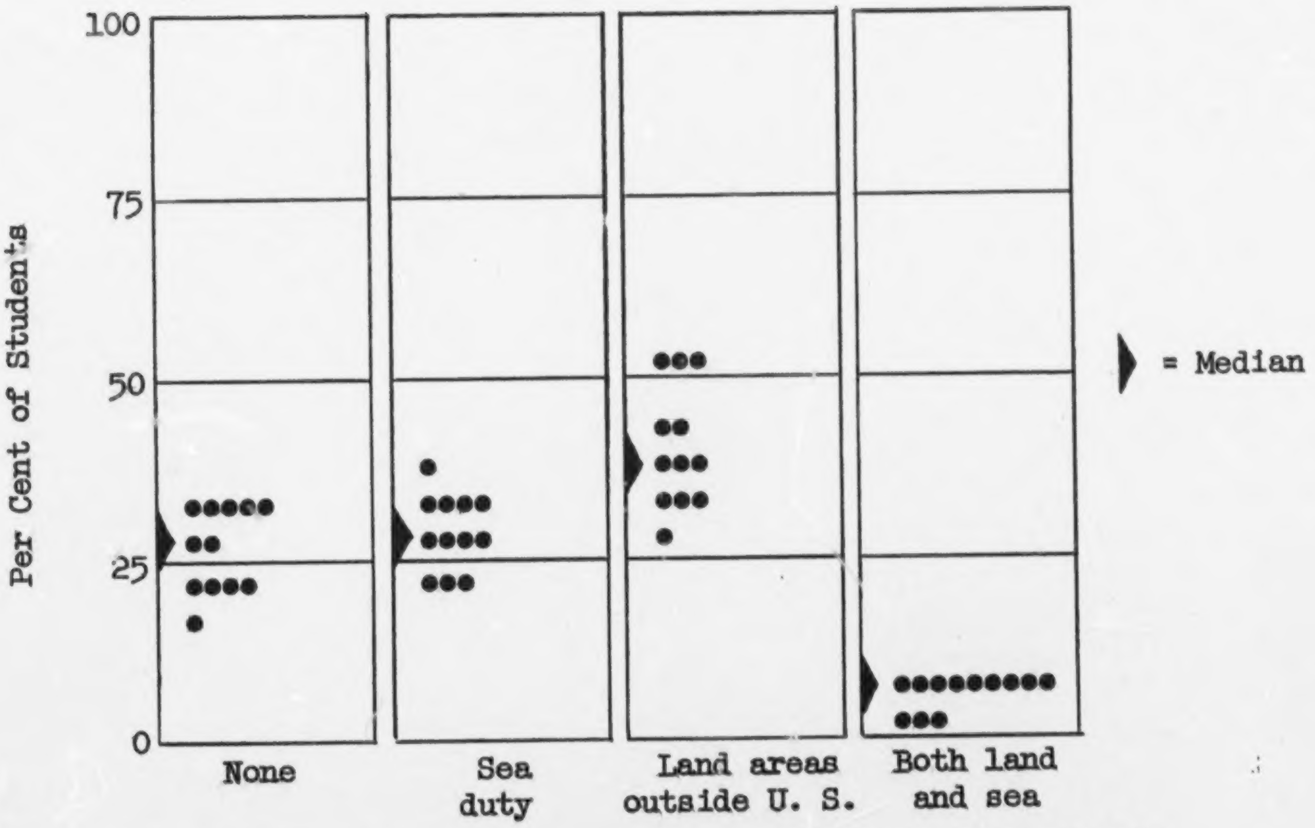
in land areas outside the U. S. It was necessary to provide a fourth category (D) for veterans who had served both on sea duty and in land areas outside the United States, since some students checked more than one response. The responses to the question, "What areas?" were not coded. This item was included to test the hypothesis that those veterans who had had duty outside the United States and hence who had had broader experiences, travel, and possibly combat experience, would achieve higher grades, in relation to ability, than veterans who did not serve outside the United States. The results are shown in Figure 18.

> Most of the veterans had served outside the United States, more often in land areas than on sea duty. These veterans with the broadest experience, travel outside the United States, and possibly combat, did not prove to be superior students in relation to their ability. Sea duty, on the contrary, seems to be associated with underachievement to a slight extent. None of the differences, however, appears to be statistically significant.

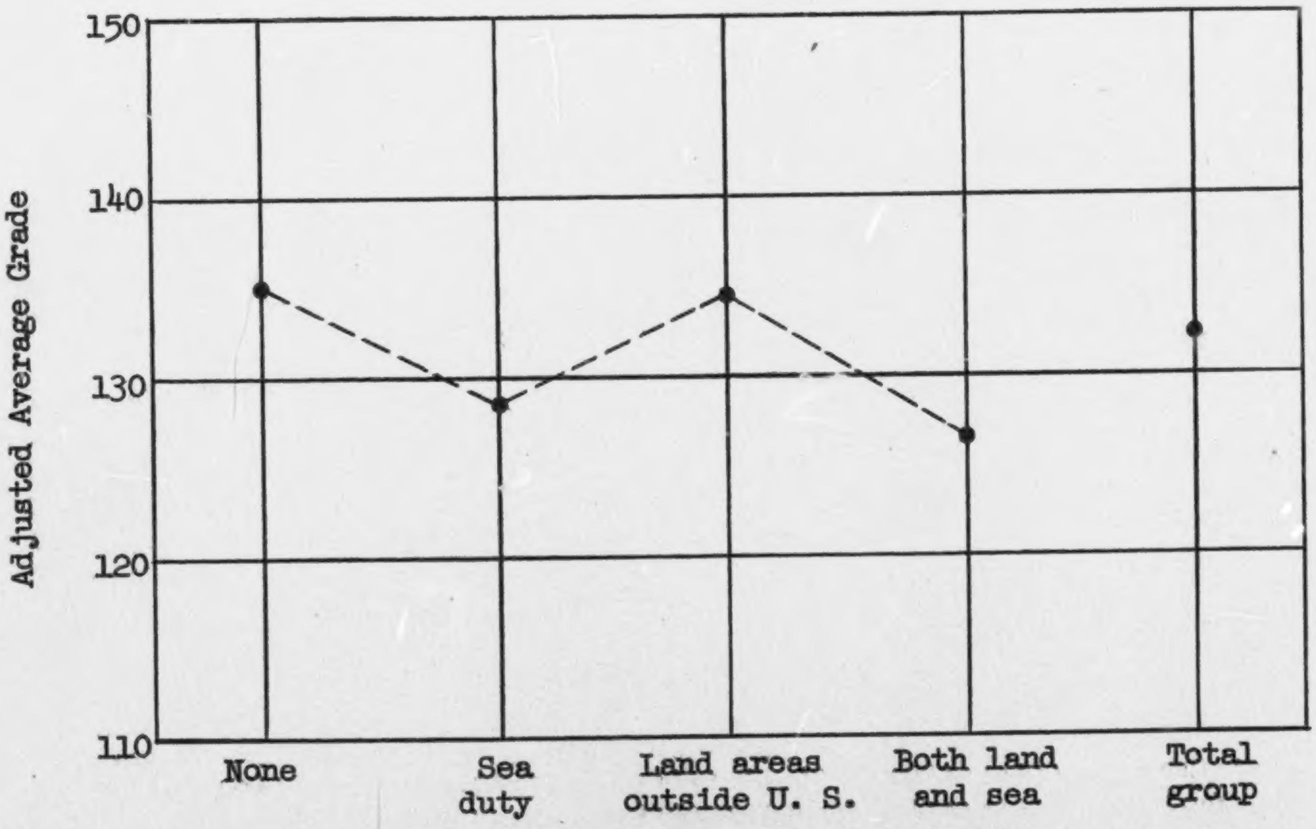
Nearly 40 per cent of the veterans, in the median group, had served in land areas outside the States, more than 25 per cent had served on sea duty, and more than 25 per cent had had no service outside the United States. Less than 10 per cent had had both land and sea duty outside the States. The largest proportion of veterans who had served outside the country was at Evans (about 85 per cent) and the smallest proportion (about 65 per cent) was at Stewart, Douglas, and Southern Tech.

Veterans with no overseas duty and those who had served in land areas outside the United States were about equal with respect to AAG, while those with sea duty and those with both sea duty and duty in land areas outside the States tended to be lower with respect to AAG. For nine of the twelve basic groups, the mean AAG for those with no overseas duty was higher than the general mean. The difference was significant at the 1% level for one group, composed of engineering students at Middle State University. On the other hand, for nine of the twelve groups the mean AAG of those reporting sea duty only was lower than the general mean.

Length of Service Outside the United States. Item 8(g) asks for length of service outside the United States. The categories used in the analysis were (A) no service outside the States, (B) less than six months, (C) six to twelve months, (D) twelve to eighteen months, and (E) eighteen months or more. Another category (F) was added; this category (service outside the U. S.; amount not specified) includes veterans who did not respond to Item 8(g) but had answered the preceding Item 8(f) by checking Served on sea duty or Served in land areas outside the U. S. The purpose of this item is similar to that of the preceding one: to observe the relation to Adjusted Average Grade of a variable which is associated with travel and breadth of experience. The results are shown only in Appendix Table 8(g).



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 18. SERVICE OUTSIDE THE UNITED STATES: ITEM 8(f)

> Of those with service outside the United States, the majority had served at least a year. The hypothesis that greater experience, travel, and possibly combat (as indicated by length of service outside the United States) is associated with higher achievement in relation to ability is not borne out; there is, rather, a tendency for the opposite relationship to appear.

Category A (no service outside U. S.) is logically the same as Category A of the preceding item, and if all students had been perfectly consistent in their responses, the two distributions of per cents would be the same. As it turned out, the distributions are very similar but not identical; about 30 per cent of the veterans in the median group had not served outside the United States according to this item. Fewer than 10 per cent had served outside the country for less than six months, and for each of Categories C, D, and E the median proportion was about one-fifth.

The mean AAG for the median group of veterans with no overseas duty is about 135, and is no higher for any of the other categories. The value is about the same for the "less than six months" group and the "18 months or more" group, all others are lower.

In only a few instances is the category mean AAG for a particular group significantly different from the mean AAG for all other categories. At Middle State the mean AAG for veterans with no service outside the United States is significantly high and for those with eighteen months or more overseas significantly low, at the 1% level. At Adams the mean AAG for veterans spending between twelve and eighteen months overseas is significantly low at the 1% level. In the twelve basic groups, a total of seventy-two significance tests were made on the six categories of this item; this fact makes it necessary to discount somewhat the presence of three significant differences.

The mean AAG for veterans with no overseas duty is higher than the mean AAG for all veterans for ten of the twelve basic groups; one would expect this amount of consistency in the direction of the differences less than five times in a hundred trials. The mean AAG for veterans reporting six to twelve months of duty outside the U. S. is lower than the mean AAG for all veterans for ten of the twelve groups; again the proportion of differences in one direction would be expected less than five times in a hundred.

Separation Date. Item 8(h) asks for the year in which the veteran was separated from the service. It was necessary to combine all years up to 1946 into one category because of the low frequencies of response; the two resulting categories were (A) prior to 1946, and (B) 1946. This item should indicate whether the veterans who enrolled as soon as possible after separation achieved higher grades, in relation to ability, than veterans who allowed a greater amount of time to elapse before enrolling in college. Detailed results for this item are given in Appendix Table 8(h).

> The great majority of the veteran students were separated from the service in 1946, the same year they enrolled in college. Veterans who were separated at an earlier date tended to earn about the same Adjusted Average Grade as those separated in 1946.

It turned out that the great majority of veterans who entered college in the fall of 1946 were separated from the service in the same year; in the median group almost 90 per cent were separated in 1946. There was apparently a strong tendency for the veteran students to enter college as soon as possible. Of the twelve basic groups, the highest proportion of "before 1946" responses was found at the Midwest City College of Engineering (30 per cent). The proportion separated before 1946 was of course greater for groups which included veterans who entered or returned to college in 1945.

The mean AAG for the median group is almost exactly the same for those separated in 1946 as for those separated in 1945 or earlier, and none of the differences are significant for the groups considered separately. The mean AAG's for the "before 1946" subgroups are below the group means about as often as they are above the group means. Year of separation from the service is apparently unrelated to Adjusted Average Grade.

Summary. The results indicate that most of the veteran students had served in either the Army or the Navy for from one to three years and held enlisted ratings of sergeant or petty officer third class and higher. More than a quarter had not served outside the United States; of those who had, most served more than a year outside the United States. The great majority of the veteran students in this study entered or returned to college in the same year they were separated from the service.

None of the items was markedly related to AAG. There were slight tendencies for high AAG to be associated with greater length of service and higher rank. The hypothesis that veterans who had served outside the United States and therefore had broader experiences, travel, and possibly combat, would excel other veterans in grades relative to ability was not supported; in general, the veterans who served in the Zone of the Interior did better.

Education Received During Service

College Training Programs. The purpose of Item 8(d) ("While in service, how many months did you spend in college training courses such as V-12, ASTP, CTD, or Pre-Flight?") is to determine whether or not such training was related to overachievement in college and whether or not the superiority of veteran students might be a function of such training. Of course, since many of the veterans who received such training were given advanced standing and hence not included in the study, the students included had, in general, received only a small amount of college training, if any, while in service. The categories used in the analysis were (A) none, (B) one month up to six months, and (C) six months or more. Results for this item are shown in Appendix Table 8(d).

> When veterans who received advanced standing are excluded from consideration, there remain only a few who had college training while in service. The present analysis indicates that the tendency for veterans to achieve higher college grades than non-veterans of equal ability cannot be ascribed to this college training.

The great majority of the veterans included in the study, after the preliminary editing of the data as described in a preceding chapter, had received no college training; the median percentage in this category was about 80. The median per cent in the "one to six months" group was 15; in the "over six months" group, 5. The single striking exception was the group of interrupted veterans in the College of Engineering at Midwest Tech, where about 70 per cent had received college training.

The median AAG values shifted upward very slightly with amount of college training. The differences in mean AAG were not significant at the 1% level in any of the twelve groups, and the trends in individual groups were not consistently in either direction.

USAFI Courses. The veterans were asked in Item 8(e) whether they had taken any courses from the United States Armed Forces Institute, because it was thought that taking such courses might be an indication of academic interest which would be reflected in college achievement. It is realized of course that opportunities for taking such courses were not equally favorable for all servicemen. Only the Yes-No answers were analyzed; the response to the further question of "What courses?" was not coded because of the small proportion of Yes replies. The findings related to this item are shown in Appendix Table 8(e).

> Even fewer of the veterans included in the study had taken USAFI courses than had taken college training courses. There was no significant tendency for those who had taken USAFI courses to earn higher AAG's than veterans who had not taken USAFI courses.

For the median group, more than 85 per cent of the veterans had taken no USAFI courses, and the range was comparatively small among the twelve basic groups. The smallest proportion of No responses among all twenty-five groups was at Eastern City (about 70 per cent) and the largest at Southern Tech (about 95 per cent). The median group giving a Yes answer did obtain a slightly higher mean AAG than the median group giving a No answer, but the difference is negligible. In only one group (Adams, 1946) was the difference between the two means significant at the 1% level. In the twelve basic groups the No-category veterans were lower than their group mean in five cases, and the Yes-category veterans were higher in seven cases.

Summary. The great majority of the veteran students had received no college training in such programs as the ASTP and V-12 (since such students had been deliberately eliminated in most of the groups) and had taken no USAFI courses. The tendency of veterans in this study to earn higher grades, in relation to ability, than nonveterans presumably cannot be accounted for on the basis of college training while in service, since AAG was not significantly related to amount of such college training. Veterans who had taken USAFI courses on the average earned AAG's which were not significantly higher than those of veterans who had not taken such courses.

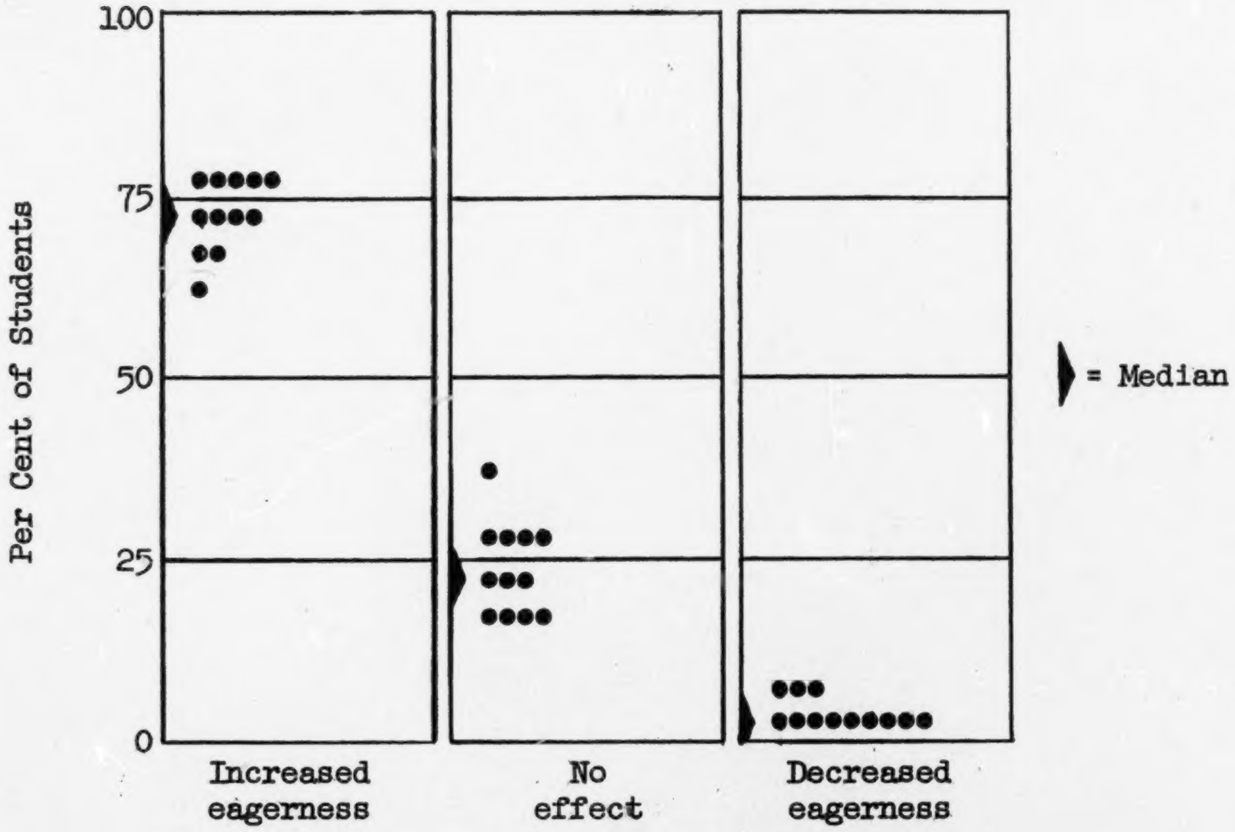
Judgments Regarding the Effects of Service Experience

The items so far discussed are concerned with relatively objective matters related to service experience. In this section a group of items will be discussed which have to do with the veteran's own opinions regarding the relation of his military service to college. More specifically, the items deal with opinions concerning the effects of service experience on eagerness to attend college, on ability to do college work, and on the quality of college work actually done.

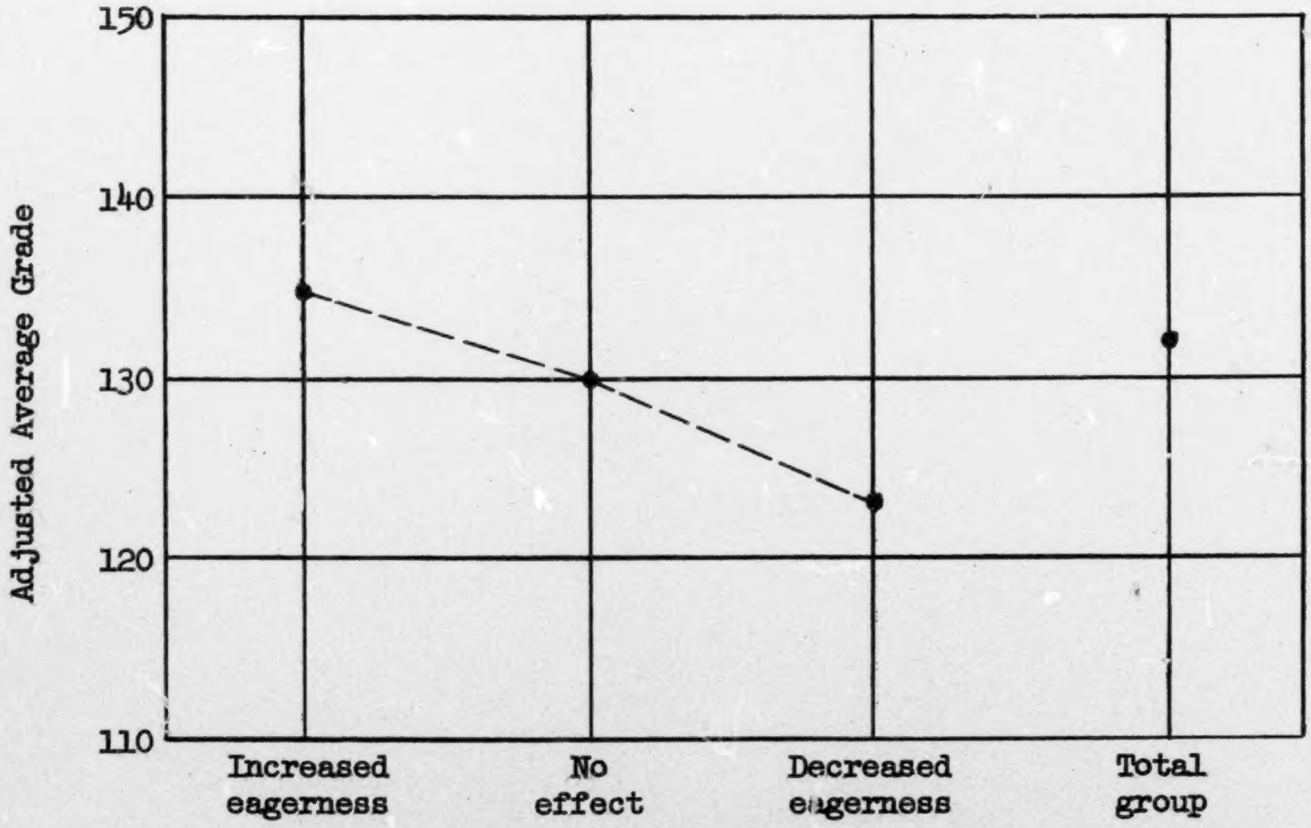
Influence of Service Experience on Eagerness to Attend College. Item 8(p) is concerned with the influence of service experience on eagerness to attend college. Category A included veterans who reported that, on the whole, their experience while in service made them "more eager to go"; Category B was "Did not change my feelings about college"; and Category C was "Made me less eager to go." The item was included in order to provide some basis for an estimate, however crude, of the extent to which military service experiences contributed to an increased motivation for college attendance. The analysis of the item should also provide an indication of the relation of change in attitude about attending college to Adjusted Average Grade. The results are shown graphically in Figure 19.

> The veterans tend to agree in testifying that service experience made them more eager to attend college. Those who reported less eagerness as a consequence of military service tended to earn lower grades, in relation to ability, than those veterans reporting greater eagerness. It is possible, however, that this relationship results from rationalizing the grades already obtained by the students when they answered the questionnaire item.

About 75 per cent of the students in most of the groups reported that military service made them more eager to attend college. In the median group, almost 25 per cent reported no change in attitude, and less than 5 per cent reported less eagerness to attend college. The proportions tended to be fairly uniform in the various basic groups. It should be kept in mind, of course, that these figures are based only on veterans who entered



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

IGURE 19. INFLUENCE OF SERVICE EXPERIENCE ON EAGERNESS TO ATTEND COLLEGE: ITEM 8(p) college; and this finding might not hold for a random sample of veterans. Among the interrupted veterans, where there had been college experience before war service, there was a greater tendency to report no change.

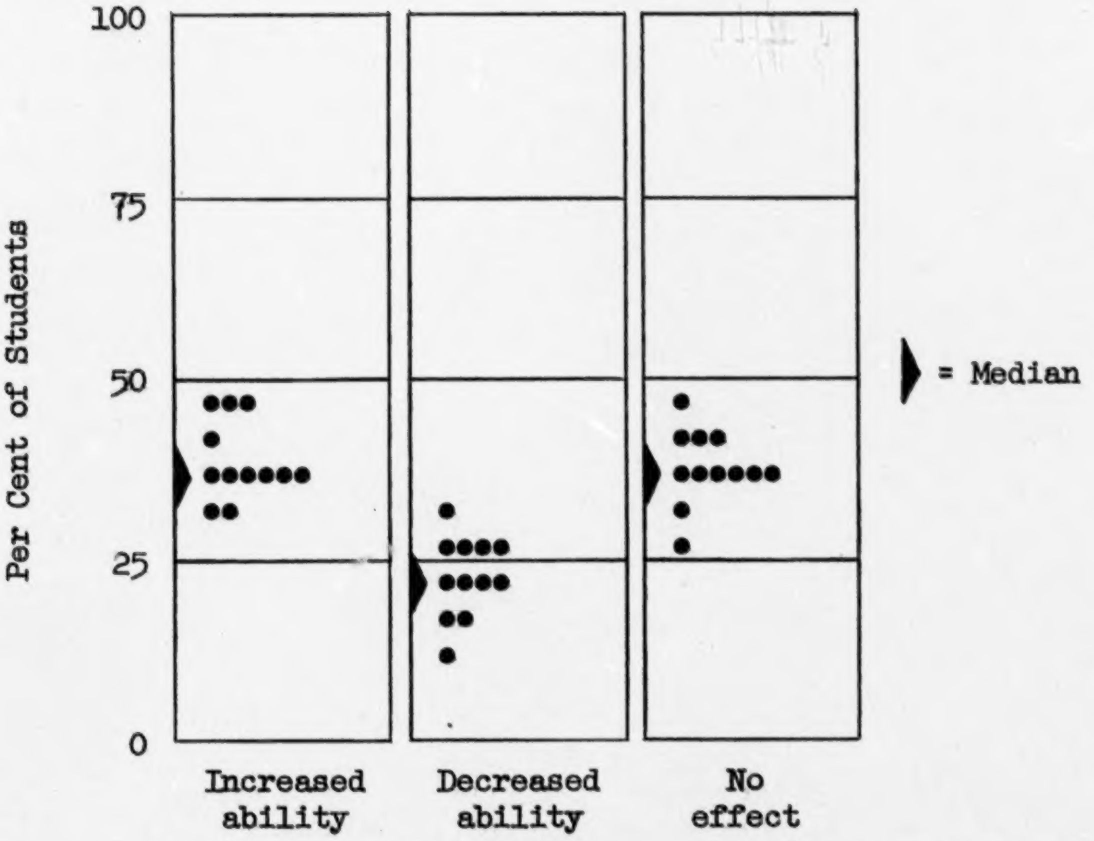
The relationship of the item to mean AAG is somewhat more marked than for items previously considered. The mean AAG for the median group who reported greater eagerness is about 135; the corresponding figure for those who were less eager is about 125. The students whose interest was increased were on the average superior to other veterans in nine of the twelve basic groups and inferior in only one group. The opposite tendency was found for the other two groups of students. Those who reported no change were on the average inferior in ten, and those who reported less eagerness were inferior in nine of the twelve groups.

In interpreting these results, it must be remembered that the students responded to the questionnaire during the second term of the academic year, after they had considerable knowledge of their academic success. Since AAG is rather closely related to obtained grades, the possibility that the responses are rationalizations reflecting knowledge of academic success must not be overlooked.

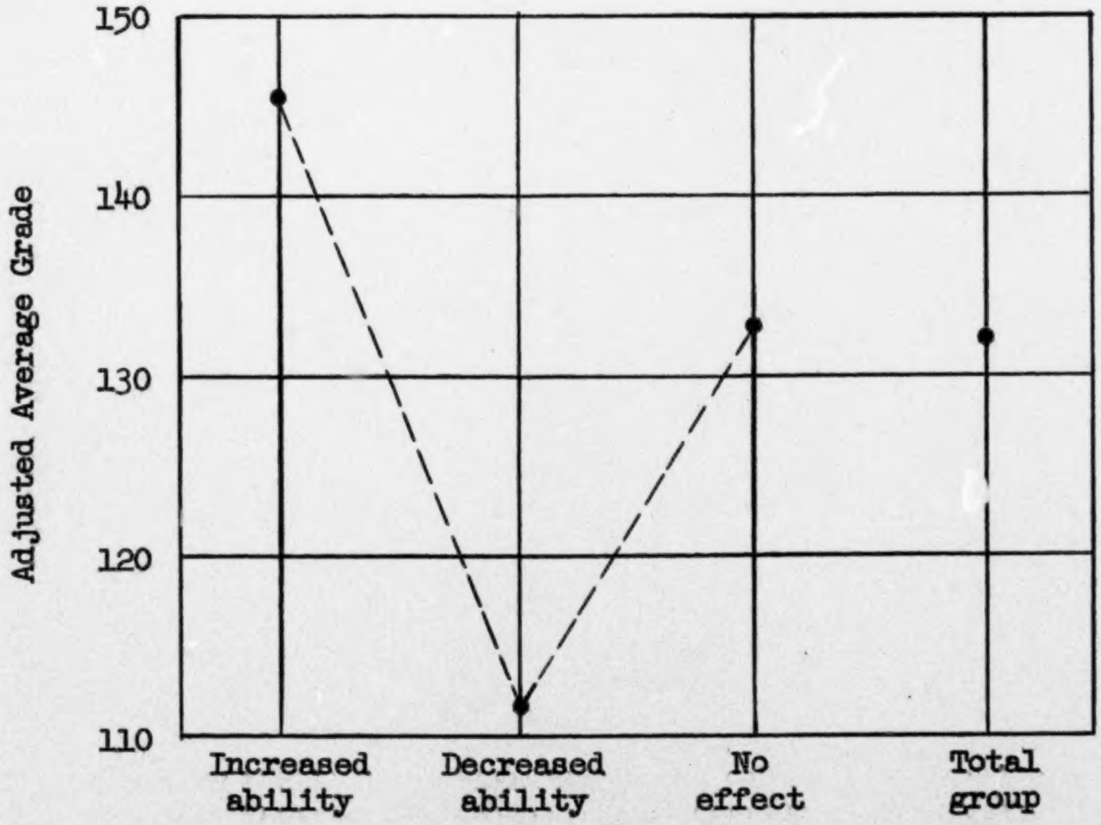
Influence of Service Experience on Ability to Do College Work. The purpose of Item 8(q) was to determine whether, in the opinion of the veteran students, military service experience had increased or decreased ability to do good scholastic work in college. The three categories of response were (A) increased ability to do good scholastic work, (B) decreased ability, and (C) no effect on ability to do good scholastic work. The results are shown in Figure 20.

> The majority of veterans thought that military service either increased their ability to do good scholastic work or had no effect; only about a fourth thought that ability was decreased by service experiences. The relation of the item to AAG is highly significant and in the expected direction. The interpretation of these findings is in doubt, it is true, because of the possibility that the opinion of the veteran was influenced by the grades he actually had earned.

Slightly less than 40 per cent of the veterans, in the median group, reported increased ability, and approximately an equal number reported no effect. Fewer than 25 per cent, in the median group, felt that military service experience had decreased their ability to do good scholastic work in college. Most of the college groups cluster rather closely about the median. One group which differed appreciably with regard to responses to Item 8(q) was Eastern City, where 45 per cent of the veteran students thought that their ability to do academic work was decreased by service experience.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

URE 20. INFLUENCE OF SERVICE EXPERIENCE ON SCHOLASTIC ABILITY: ITEM 8(q)

The relation of this item to Adjusted Average Grade is very striking, in comparison with other questionnaire items. The mean AAG (for the median group) of those who felt that ability was increased was about 145 and of those who felt that ability was decreased was about 110. In the case of each of the twelve basic groups, the mean AAG of those students reporting increased ability was higher than that of other students in the group, and the mean AAG of those reporting lessened ability was lower than that of other students in the group. Of the twenty-four differences just mentioned, twenty-one were significant at the 1% level. There can be no doubt of the strong tendency for Adjusted Average Grade to be associated with judgments about the influence of war service experience on ability to do scholastic work in college.

The interpretation of these results is again dependent on the fact that the questionnaire was filled out late in the academic year when each student had rather definite knowledge of his degree of academic success. Since AAG has a reasonably high correlation with grades, it appears likely that those students whose grades were high tended to attribute their success to service experience, while those with low grades blamed their poor achievement on experience while in the service.

Influence of Service Experience on College Work. Item 8(r)(1) was included in an attempt to ascertain whether, in the opinions of the veteran students, they were doing better or worse in their college work than they would have done if they had gone on with their schooling instead of going into the service, regardless of the reasons for their answer. The three response categories were (A) now doing better, (B) doing worse, and (C) doing neither better nor worse than would have been done. The findings on this item are shown only in Appendix Table 8(r)(1).

> Almost as many veteran students felt they were doing worse as a result of their service interruption as felt they were doing better; about one fourth felt they were now doing neither better nor worse. As with the preceding item, the responses are significantly related to AAG.

Although it was found in the previous item that only about one fourth of veterans attributed a loss in scholastic ability to their service experience, the percentage who felt that they were doing worse than they would have done if their schooling had not been interrupted rose to about 35. There was a corresponding reduction in the neutral response, from almost 40 per cent to about one fourth. The percentage who felt that they were doing better was about the same as the percentage who judged that their scholastic ability was increased. A plausible hypothesis is that some veterans felt that their present work was hampered by their interrupted schooling, even though their service experience had not lowered their basic ability to do college work. A related possibility is that, since the college record was relatively concrete and definite, they expressed a definite positive or negative attitude concerning it; the more nebulous concept of "scholastic ability" tended to elicit neutral responses.

In this item, as in the item previously described, the relation of the item to AAG was clearly significant; the mean AAG for the median group reporting that they were doing better was about 150 and for those who said they were worse, about 115. Again twenty-one of the twenty-four differences between category means and the mean AAG's for the total groups were significant at the 1% level. Again it must be pointed out that the hypothesis that the results are due to rationalizations must be seriously considered.

Reasons for Influence of Service Interruption on College Work. Item 8(r)(2) is an open-end question, "What is the most important reason for your answer?" which followed Item 8(r)(1). The purpose was to discover the reasons (or rationalizations) given by veteran students as justification for doing better (or poorer) work than they would have done if they had continued schooling rather than entering the service.

Two categories were used in coding the responses of those students who had chosen the "now doing better than I would have done" response, and two different categories were used for coding the responses of students who chose the "now doing worse" response. The no response cases included those who chose the "neither better nor worse" category as well as those who failed to make any response to Item 8(r)(2).

The two 8(r)(2) categories used in coding the responses of students who thought they were "doing better" may be characterized as follows: (A) more mature, more responsible, broader experience; and (B) improved attitude toward education, clearer objectives and better concentration. Reasons given for "doing worse" were classified into two more categories: (C) impaired ability to absorb new information, have lost knack of studying, have forgotten background knowledge; and (D) restlessness, nervous tension resulting from wartime experiences, changed sense of values, tendency to place extracurricular activities above academic achievement. The results for this item appear only in Appendix Table 8(r)(2).

> The analysis of the responses seems to show that veterans who feel they are doing better in college than they would have done if they had continued their schooling tend to attribute their doing better to broad factors such as maturity and experience slightly more often than to more specific attitudes concerning education and educational objectives. Those who report that they are doing worse feel that it is due to loss of specific skills or information more often than to emotional or attitudinal factors. The reason given is unrelated to AAG, although, as noted before, those who thought they were now doing better earned significantly higher grades than those who thought they were doing worse.

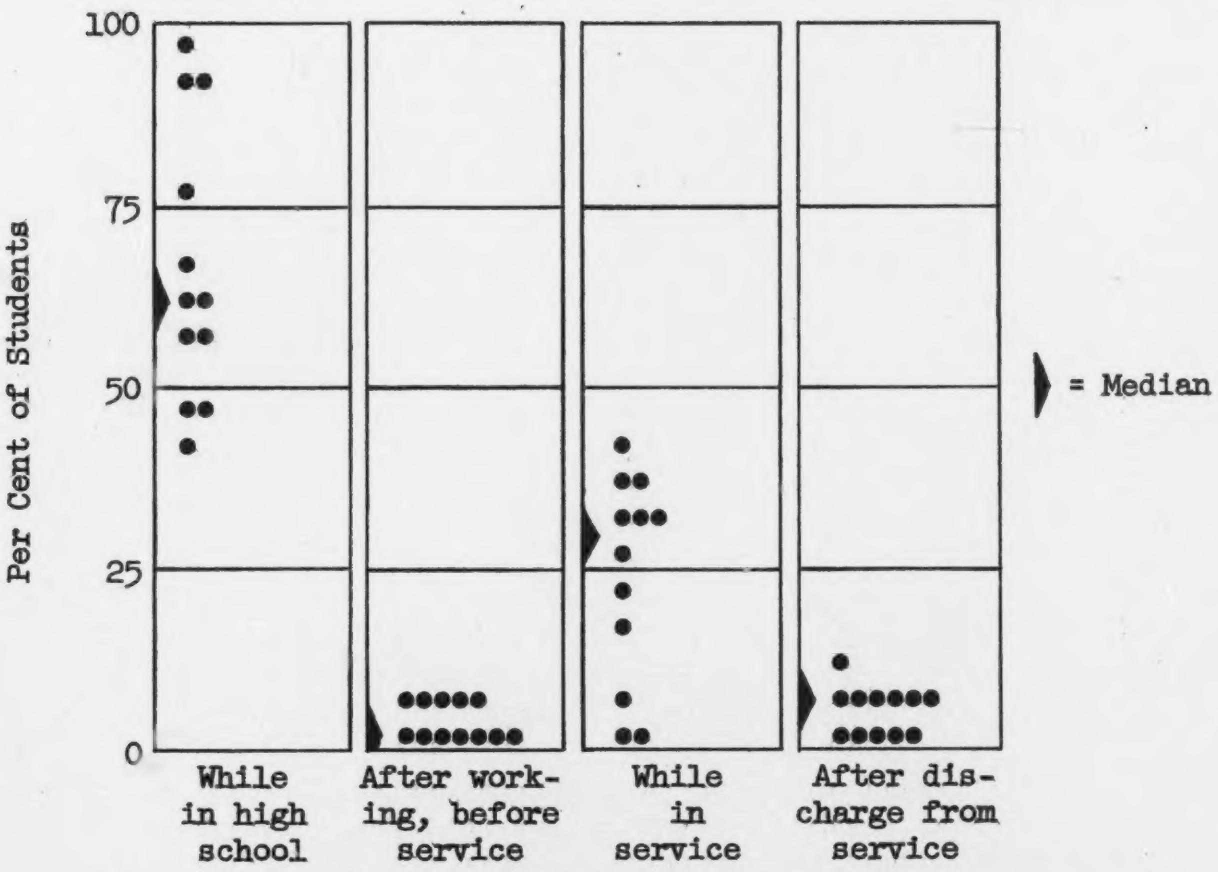
The reasons given for doing better which were classified as Category A were given slightly more often than the Category B responses; the median per cents were about 20 and 15 respectively. The tendency was to ascribe the better achievement to maturity and the like slightly more often than to more specific attitudes and motives. The Category C reasons for doing worse were chosen considerably more often than the Category D reasons, the percentages for the median groups being almost 25 and about 10 respectively. There seemed to be a definite tendency to ascribe poorer achievement to loss of specific skills or information rather than to emotional or attitudinal factors.

The most striking tendency, so far as mean AAG is concerned, is for the students who gave reasons for doing better to earn higher AAG's than the students who gave reasons for doing worse. This effect is of course the same as the one described in connection with Item 8(r)(1). The type of reason given for doing better is unrelated to AAG; similarly, the type of reason given for doing worse is not associated with grades relative to ability.

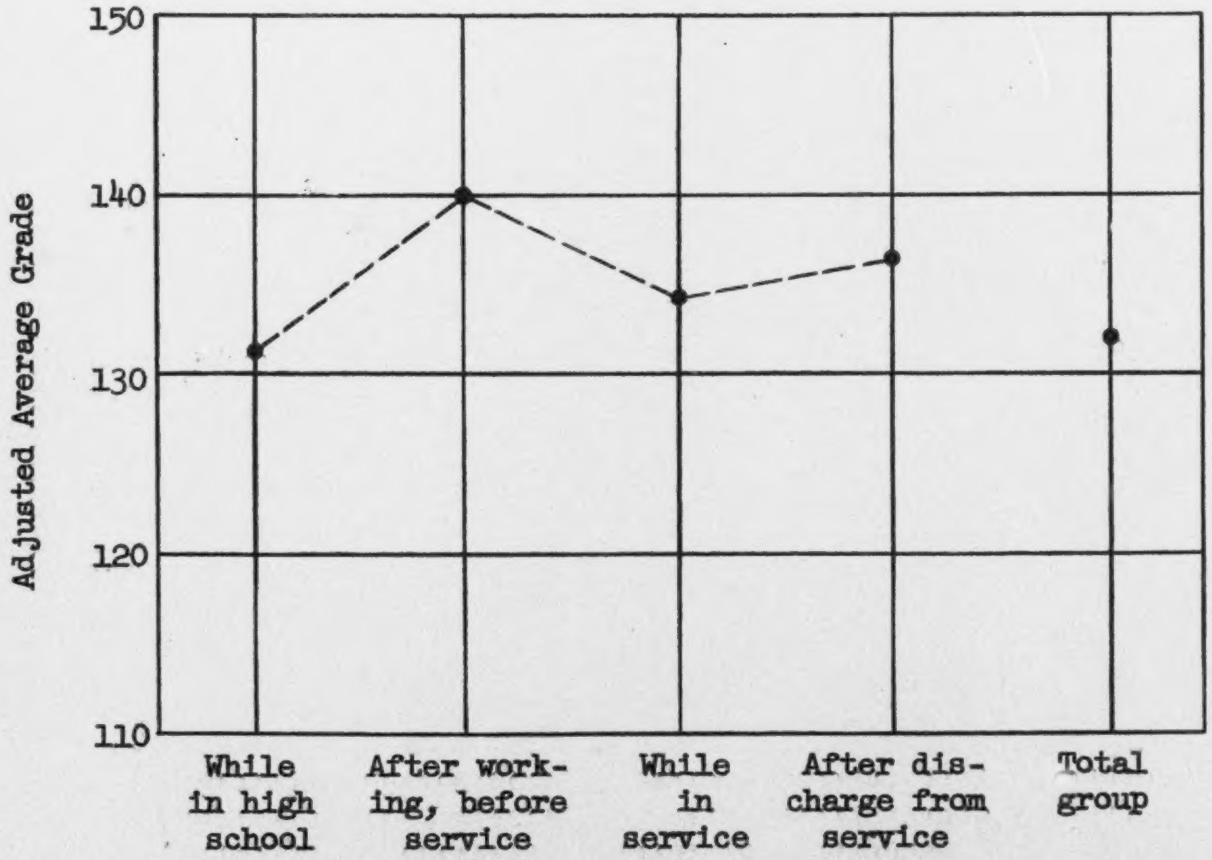
Summary. The great majority of the veteran students claimed that service experience made them more eager to attend college, while very few reported less eagerness. Less than half thought that ability to do college work was increased as a consequence of military service, while about a fourth thought ability was decreased. With regard to the question of the influence of service experience on the quality of work done in college, opinion was almost equally divided between "doing better" and "doing worse" than would have been done without the intervention of military duty. "Doing better" is slightly more often attributed to such broad factors as maturity and experience than to more specific attitudes concerning education and its objectives. "Doing worse" is blamed on loss of specific skills or information more often than on emotional or attitudinal factors. The results for these attitudinal items are undoubtedly related to the fact that the questionnaire was filled out after the students had considerable knowledge of their academic success in college. Students with high grades presumably tended to attribute their success in part to service experience, while students with low grades tended to blame service experience for their poor standing. Nevertheless, the relationships found throw significant light upon the process by which students evaluate their past experiences in relation to present status.

Service Experience and Educational Plans

Time of Decision to Attend College. Many veteran students had planned from the beginning to attend college, and for these students the war merely postponed or interrupted college attendance. For other veterans, college had not been seriously considered until experience related to employment or war service and possible financial assistance through the educational provisions of the GI Bill influenced the decision to attend college. The purpose of Item 8(j) was to investigate the variation in time of decision (defined in relation to high school attendance, employment, and service experience), and to study the Adjusted Average Grade of students who decided at these various times to attend college. The item as stated was, "When did you first decide definitely that you would go to college?" The responses were as follows: (A) before graduating from high school; (B) after working awhile, but before entering the service; (C) while in service; and (D) after discharge from the service. The results of the analysis are shown in Figure 21.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 21. TIME OF DECISION TO ATTEND COLLEGE: ITEM 8(j)

> Veteran college students generally decided to go to college while still in high school; at some universities this tendency was especially marked. The remaining students generally decided while in service. The time of decision to attend college bore essentially no relation to Adjusted Average Grade.

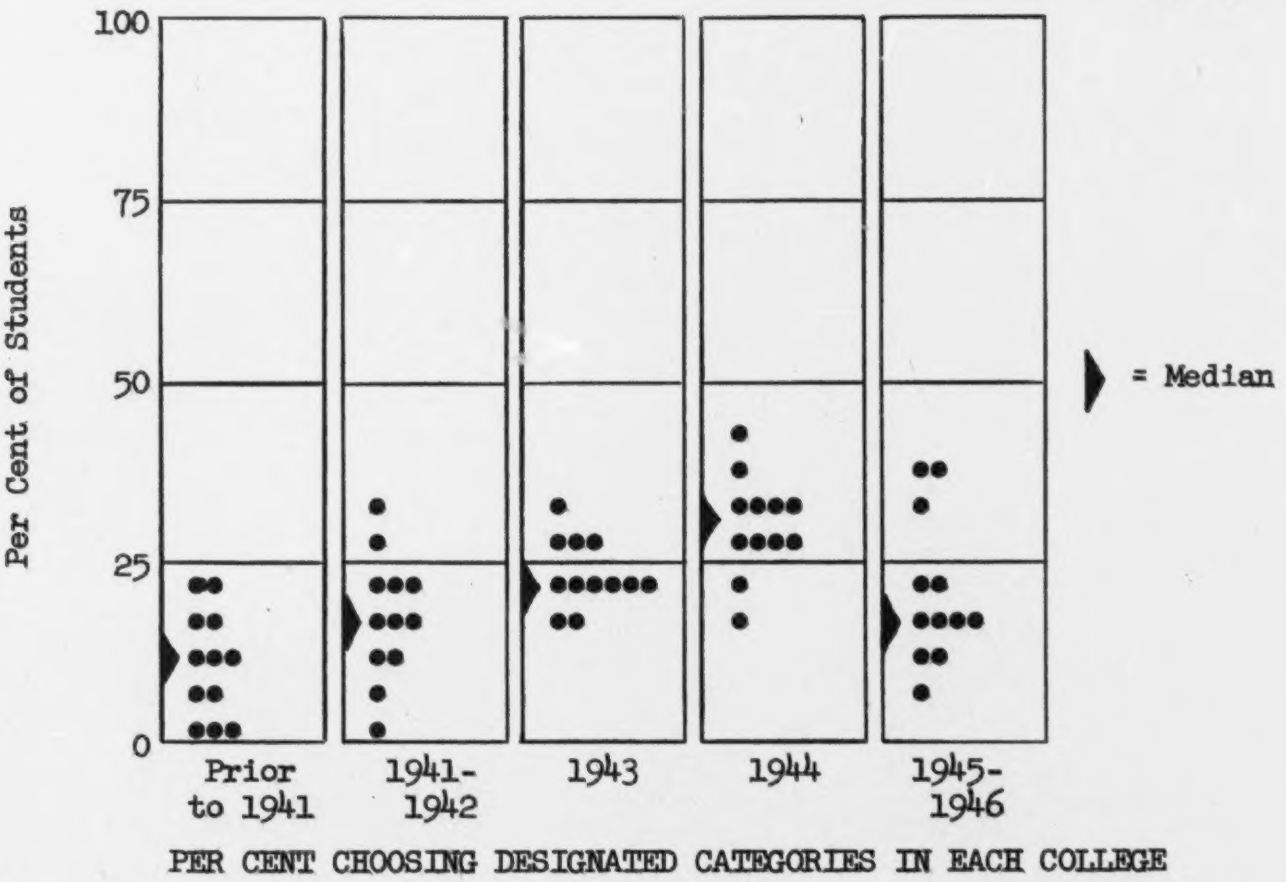
Considerable variability among groups was found with respect to the proportion of veterans who had decided to go to college before graduating from high school. At several colleges more than 90 per cent had decided while in secondary school. The proportion was highest at Stewart (over 95 per cent); at Adams and Douglas the per cent was also 90 or higher. In the remaining basic groups, the percentage of responses in this category varied from about 45 at Evans to about 75 for Harris University. In the interrupted-veteran groups, practically all had decided while in high school to go to college. For the interrupted veterans in the two groups at Midwest Tech, the percentages went down to below 90; the remainder of the students had generally worked a while before deciding to go to college.

Except for interrupted veterans, the time of decision was, if not before high school graduation, generally during military service. Comparatively few veterans said that they first decided to go to college after discharge from the service.

Inspection of the mean AAG's for the median groups reveals that time of decision to attend college is not strongly related to Adjusted Average Grade. Students who did not decide to go to college until they were in service earned almost exactly the same mean AAG as those who decided while in high school. A category mean AAG was significant at the 1% level in only one instance: at Harris, the group of students who decided to attend after working but before war service was significantly superior to all other students in the veterans subgroup.

Interruption of Educational Career. Both veterans and nonveterans were asked to answer Item 6(b): "When were you last in full-time attendance in high school or preparatory school?" This item was considered to indicate year of high school graduation; the phrasing of the question was designed to prevent confusion in cases where veterans were granted diplomas after war service on the basis of military training. Year of high school graduation was almost invariably 1946 for the nonveterans in the twelve basic groups; therefore, detailed results are presented only for the veteran students. (It should be noted that, for this item, only those college groups composed of freshmen entering in 1946 will be considered.)

Five categories were used in analyzing the responses: (A) prior to 1941, (B) 1941-1942, (C) 1943, (D) 1944, and (E) 1945-1946. Since the veterans had been away from formal school for varying periods of time, it was thought that any trend which might appear in AAG's of these groups would be useful in understanding veteran-nonveteran differences. The results are shown in Figure 22.



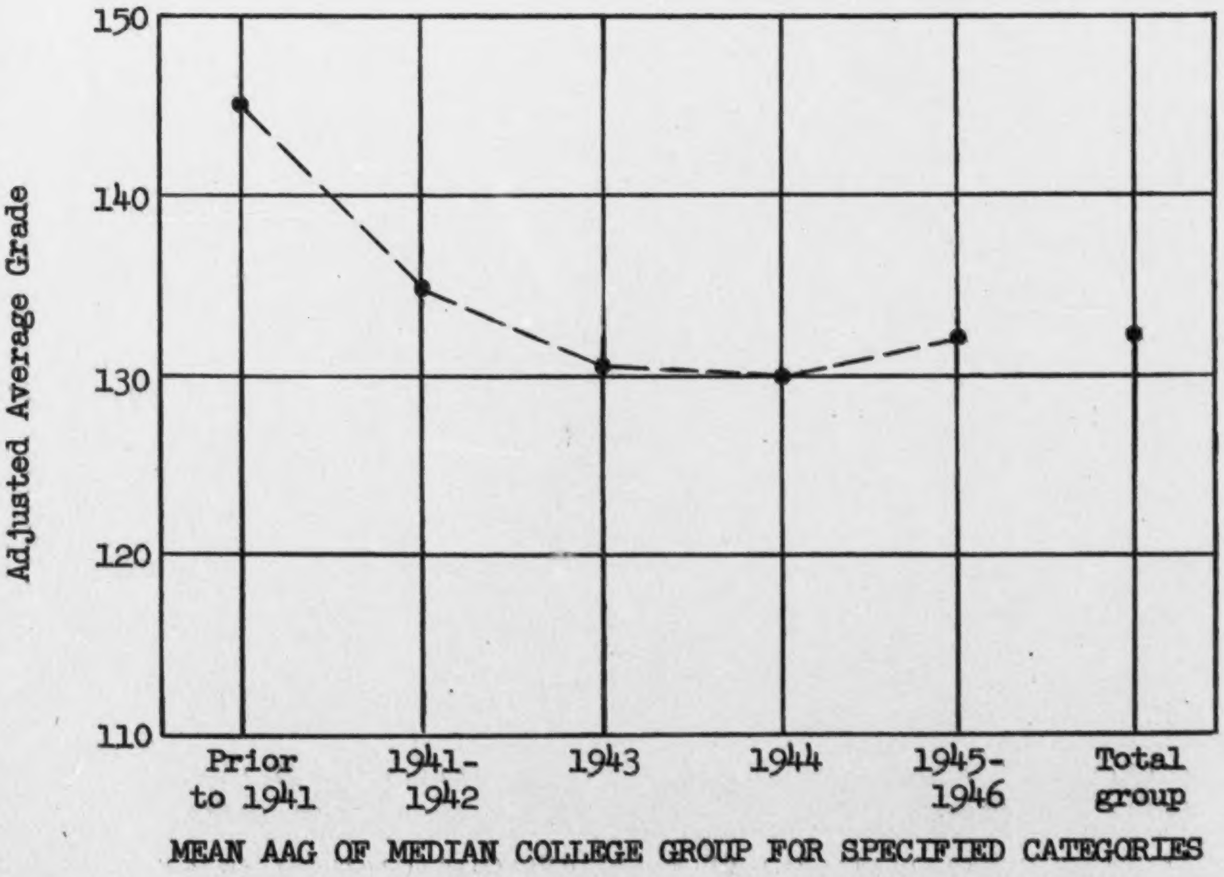


FIGURE 22. YEAR OF LAST FULL-TIME ATTENDANCE IN SECONDARY SCHOOL: ITEM 6(b)

> The amount of service interruption varied considerably, with more veterans in the two-year category than in any other. Those who had finished high school at least six years before they entered college tended to obtain relatively higher grades than those with less interruption.

Inspection of the arrowheads representing medians shows that typically about 30 per cent of the veterans last attended high school in 1944; most of them presumably graduated in the spring of 1944, two years before they entered college. Nearly 20 per cent had finished school more recently than 1944, and the remainder had been out of school for more than two years. About 10 per cent had last attended high school prior to 1941, at least six years before college entrance. The various college groups differed considerably with respect to year of high school graduation; at Stewart, for example, no veterans were found to have graduated before 1941, while at Midwest City 24 per cent were in this category.

There is a tendency for those veterans who had graduated six or more years previous to college entrance, the "before 1941" group, to excel in Adjusted Average Grade. The mean AAG for the median group in this category is almost 145, while for students who had graduated in 1943 or later, the corresponding value is about 130. In all eleven of the basic groups containing veterans who reported graduation before 1941, the mean AAG of these veterans was higher than for the other veterans. In six of the eleven groups, the difference was significant at at least the 5% level of confidence. The recent (1944) graduates, on the other hand, were lower in mean AAG than veterans with a greater or with less interruption in ten of the twelve basic groups. The superiority of the veterans whose high school attendance was most remote may perhaps be attributed to selection; such veterans, being older, probably do not choose to return to college (or are not admitted to college) unless there are special factors of motivation which are later responsible for the tendency to overachieve.

Summary. Veteran students generally had decided to go to college while they were still in high school; but colleges varied considerably in the proportion of veterans who had decided at that time. If the decision was not made while in school, it was almost always made while in the service. Most veterans had last attended school two or more years prior to college entrance. Time of decision to attend college was unrelated to AAG; there was, however, a tendency for those veterans who had completed high school before 1941 to excel in Adjusted Average Grade. This tendency might, of course, be accounted for on the basis of selective factors: the older veterans probably do not choose to return to college unless they are strongly motivated to do so and have special incentives for college work.

What About the Married Veteran?

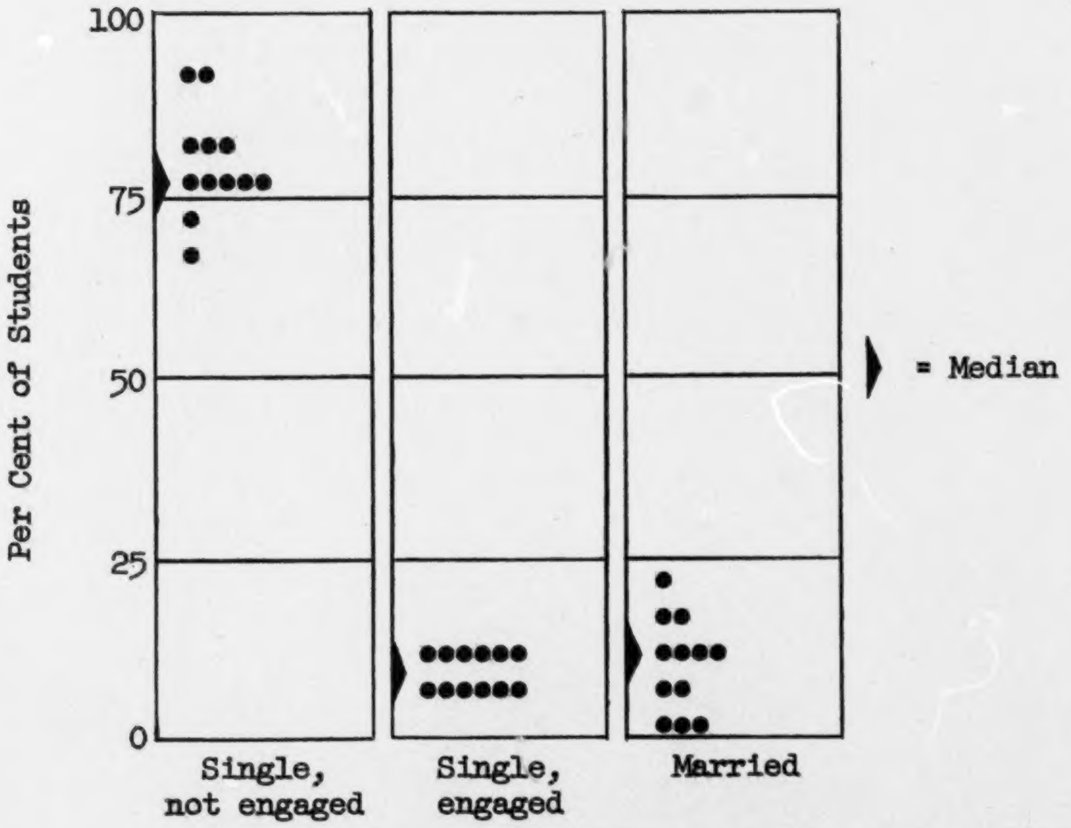
Marriage: Status and Plans. Item 34 inquires as to the marital status of the students. The presence of numerous married veterans on the campus during the postwar period provided an opportunity to study how the married veterans compared with the unmarried in college achievement adjusted for ability differences. The analysis to be reported is limited to veteran students, since practically none of the nonveteran freshmen were married.

The item as it appeared in the questionnaire contained four choices: (1) single, not engaged to be married, (2) single, engaged to be married, (3) married, and (4) widowed, divorced, separated. For purposes of analysis, the very few students in (4) were combined with those in (3) to make a new category: married, now or previously. The results are shown in Figure 23.

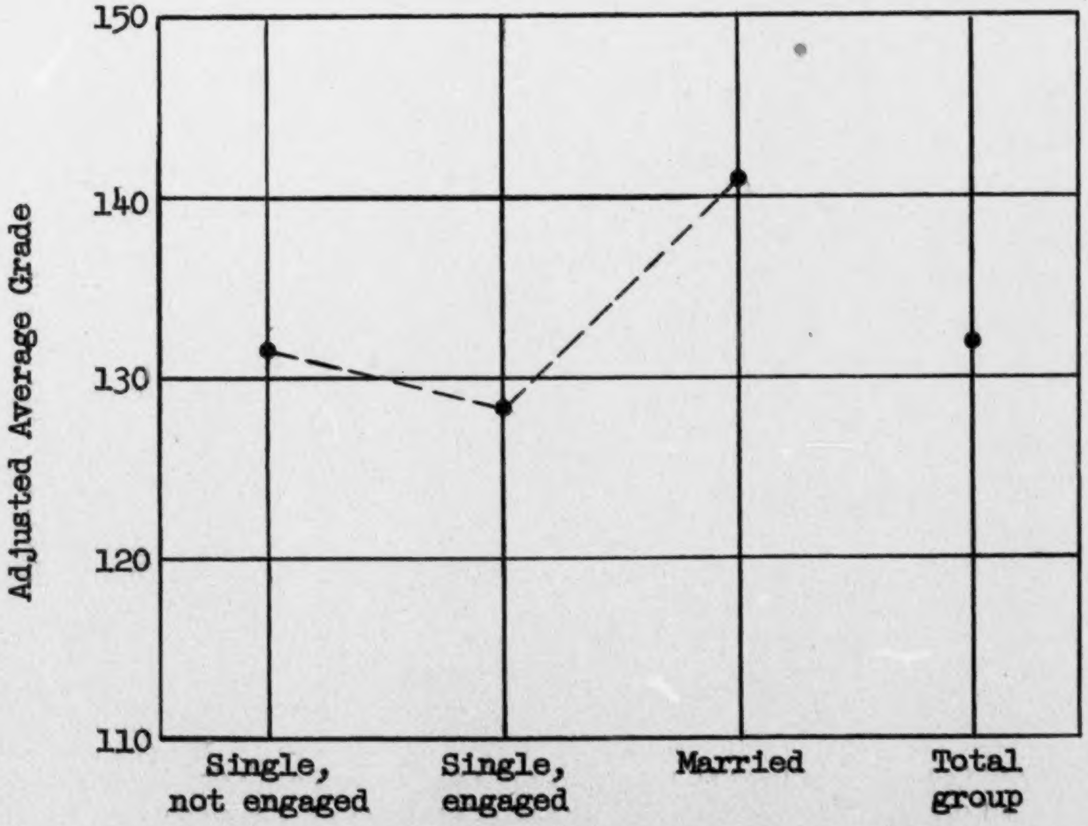
> The veterans in this study were typically single and not engaged. A significant tendency was found for married veterans to excel the single veterans in Adjusted Average Grade. It is of course not necessary to assume that students improve scholastically as a consequence of getting married. It is more likely that the superiority of married students is the result of selective factors; a married student would not ordinarily be expected to continue in college without unusually compelling motives to do so.

The great majority of the veteran students in the basic groups were single and not engaged to be married. The median percentage was almost 80. For the per cent engaged, the median was about 10 per cent; the median for per cent married was slightly greater than 10 per cent. The percentages did not vary greatly among the various colleges, although at Adams and Stewart more than 90 per cent were single and not engaged, while at Midwest City, the per cent in this status was less than 70. The per cent married was, logically enough, higher in the older groups; it reached a high of about 45 per cent in the interrupted group at Midwest Tech. At the other extreme were Stewart and Eastern City, with no married freshman veterans in the group studied.

The married veterans tended to earn higher grades, in relation to ability, than the single students. In the median group the mean AAG of married students was about 140; for single students not engaged, the corresponding median AAG was a little over 130, and for engaged students it was slightly under 130. In each of the eleven basic groups which contained married veterans, the married students were superior to single students; obtaining eleven differences, all in one direction, would be expected by chance less than once in a hundred times. Considering the groups separately, however, in only one case (Miller) is the mean AAG for married veterans



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 23. MARITAL STATUS: ITEM 34

significantly greater at the 1% level than the mean AAG for students falling into other categories; it should be kept in mind, of course, that the number of married veterans in most groups was rather small.

The remaining questionnaire items concerned with marital status were to be answered only by students who had answered Item 34 by checking married. The percentages and mean AAG's are therefore based on much smaller numbers of students than have typically been available. In order to minimize the number of statistics based on extremely small samples, the responses to these "married only" items have been classified into two categories in all cases. Since there were no married veterans in the Stewart group, the findings are based on only eleven of the basic groups.

Number of Years Married. Item 35(a) asked simply, "About how long have you been married?" In order to get two categories with approximately equal numbers of responses, several choices were combined to form Category A, one year or more. Category B was, accordingly, less than one year. Analysis of this item should reveal whether or not length of time married is related to Adjusted Average Grade, as well as to find out something about how long veterans who are in college have been married. Results are presented in Appendix Table 35(a).

> A majority of the married veterans had been married for at least a year. So far as our data show, length of time married is unrelated to Adjusted Average Grade. The data are, of course, not adequate to furnish a good test of the hypothesis.

Since the number of married veterans in the eleven basic groups having some married veterans varied from 62 to only 3 (at Littletown State), the results are extremely unreliable. The statistics for the median groups may furnish a more stable reference point, however. It was found that almost two thirds of married veterans had been married for a year or more. The mean AAG's were approximately the same for the median groups in the two categories, and the number of groups in which the "year-or-more" mean AAG was higher than the "less-than-one-year" mean was no greater than would be expected by chance.

Number of Children. Item 35(b) asks, "How many children do you have?" The two response categories used were (A) none; and (B) one or more. The hypothesis to be tested is that veterans with children earn higher grades, in relation to ability, than veterans without children. Results are given in Appendix Table 35(b).

> Among the married veterans in this study, only about one fourth had one or more children; the available data showed no tendency for the presence or absence of children in the family to be related to AAG.

The married veterans in the eleven basic groups under consideration typically had no children. Only one fourth of the median group reported having one or more children. Again the mean AAG's for the median groups in the two categories were approximately the same. The number of groups where the veterans with children excelled in mean AAG exactly equalled the number of groups where the childless veterans obtained a higher mean AAG.

Satisfaction with Living Arrangements. Item 35(d) asked, "How well satisfied are you with the living arrangements you and your wife have at the present time?" The number of categories was reduced to two by letting Category A represent those who were satisfied and Category B those who were dissatisfied with their living arrangements. Results are presented in Appendix Table 35(d).

> Roughly two thirds of married veterans reported that they were satisfied with their living arrangements; no evidence was found that attitude toward living arrangements was related to AAG.

So far as the medians show, about two thirds of the married veterans were satisfied and about one third dissatisfied with their living arrangements. As might be expected with so few students in the groups, this percentage varies greatly from college to college. No difference between the satisfied and dissatisfied veterans was found as far as AAG was concerned, and no consistent difference occurred in the various college groups considered separately.

Judgments About the Relation of Marriage to Studies. In Item 35(e) the married students were asked, "In general, do you feel that as a married student you are handicapped or benefited, relative to single students, in your studies?" The three choices were reduced to two categories by combining "handicapped by being married" and "neither handicapped nor benefited" into one category (A); Category B includes only students who reported that they were benefited. Results for this item are shown in Appendix Table 35(e).

> Roughly two thirds of married veterans thought that they were benefited in their studies by being married; there appears to be some tendency for higher AAG and reported benefits from marriage to go together.

In the median group approximately two thirds of the married veterans thought they were benefited in their studies by being married. Again, the considerable variability among groups may well be a function of the large sampling errors which result from the small numbers. There is some tendency for the students who felt they had benefited from marriage to excel in Adjusted Average Grade; the mean AAG's are about 145 and 135, and in nine of the eleven groups their mean is above that of their less happy colleagues.

It appears likely, however, that the underlying consideration is that high-achieving students are more likely to view their marriage favorably in this respect, while low achievers tend to take the opposite view.

Summary. In the typical group of beginning freshmen about four fifths of the veterans were single and not engaged and about one out of ten was married. The proportion of married students varied from none to almost 25 per cent. Married veterans tended to earn higher Adjusted Average Grades than unmarried students.

Responses to items intended only for married students showed that, among these freshmen, about one third of the married veterans had been married for less than a year, about three fourths had no children, about two thirds were satisfied with their living arrangements, and about two thirds thought they were benefited in their studies by being married. None of these characteristics was found to be related to AAG except the last--there was some tendency toward overachievement on the part of veterans who thought marriage had helped them in their work. Whether this finding reflects anything beyond a more favorable attitude toward marriage among the overachievers (and vice versa) cannot be determined from these data.

Conclusions

The "typical" veteran student who entered college in the fall of 1946 might, insofar as the findings of the present study are representative, be described as follows:

He was on active duty one to three years, held an enlisted rating of petty officer third class (or sergeant) or higher, and was more likely to have served in the Navy than in the Army. He served outside the United States, more often in land areas than on sea duty, for six months or more; he entered college in the same year he was separated from the service; he had had no college training and had taken no USAFI courses. (Veterans who had received sufficient college training while in service to give them advanced standing were excluded from the study.)

The typical veteran believed, according to his questionnaire responses, that his service experience made him more eager to go to college. He did not feel that his service experience had decreased his scholastic ability. With respect to the effect of the interruption of his schooling, he was about as likely to feel that he was doing better as that he was doing worse in his college work than he would have done had he gone on with his schooling instead of going into the service; whether this opinion was favorable or unfavorable seemed to depend in part on how well he was succeeding in college at the time he filled out the questionnaire.

He had decided to go to college while he was in secondary school, and two or more years had elapsed between school and college. He was not married and not engaged to be married at the time he filled out the questionnaire.

The majority of the questionnaire items answered by the veteran students showed no significant relation to Adjusted Average Grade. Among the few items which were related to AAG were several which dealt with opinions regarding the effects of service experience on college work and on ability to do college work. For these items the relationship between opinions and AAG which was found might best be interpreted as evidences of rationalization; since grades in college were known by the respondents when they filled out the questionnaire, it is quite possible that students with low grades tended to blame service experience, while students with high grades tended to attribute their success to that factor.

There was a tendency for those veteran students who had completed secondary school six or more years before starting college to earn higher AAG's than students who had finished school more recently. This tendency might be the result of selective factors; older men probably do not choose to return to college without unusually compelling reasons for doing so, reasons which are related to greater motivation for college achievement. It was also found that married students tended to excel with respect to AAG, and again the hypothesis of selective factors may be invoked to account for this difference: perhaps the married veterans who choose to return to college are those with stronger incentives. Whether the superiority of older veterans and married veterans should be attributed to personality changes associated with age and the responsibilities of marriage or to selective factors which become operative by virtue of increased age and responsibility for a wife unfortunately cannot be definitely determined.

RB-50-14

RESEARCH BULLETIN

ADJUSTMENT TO COLLEGE

A STUDY OF 10,000 VETERAN AND NON-VETERAN STUDENTS IN 16 AMERICAN COLLEGES

Chapter V. Age and General Background of Veteran and Nonveteran Students.

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and

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Educational Testing Service

il 17, 1950

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Chapter V

AGE AND GENERAL BACKGROUND OF VETERAN AND NONVETERAN STUDENTS

To the college faculty, perhaps the most salient characteristic of the veteran students was their greater age. Less easily observed but equally worthy of consideration were possible differences between veterans and nonveterans in work experience and in family, community, and secondary school background. The present chapter will deal with the questionnaire items which fall in this general area, taking particular account of the light they may throw upon veteran-nonveteran differences in Adjusted Average Grade.

Age

It is very tempting, in speculating about reasons for the veteran superiority in grades relative to ability, to ascribe the difference to age, to assume that the mere fact of being two or three years older gives the veteran a greater maturity which accounts for his greater achievement. It unfortunately appears to be impossible to settle this problem from the data here available. Age and veteran status are inextricably bound together; it is impossible to be a veteran without spending some time at it. A "young" veteran could not have spent much time in the service and hence cannot be representative of veterans generally. Similarly an "old" nonveteran is older than the typical nonveteran because he delayed going to college for some reason, which reason is likely to make him atypical not only with respect to age but also other characteristics. He therefore cannot reasonably be used to represent nonveterans generally.

An attempt was made, when the data were being collected, to find a group of nonveterans whose college work had been interrupted by something other than military service. It was intended to employ such a group as a control group with which to compare the interrupted veterans. It was not found possible to find such students in sufficient numbers. Perhaps it is just as well. Such a group might have been composed mainly of those classified as 4-F, to have differed in desire to attend college, or have been unrepresentative in some other way of nonveteran students generally.

Age, then, is a characteristic which, so far as this study is concerned, is almost synonymous with veteran status. As will be seen, sorting students into two age groups is almost the same as classifying them with respect to veteran status.

Item 32, which deals with age, asks simply, "When were you born?" Nine choices ranging from "before 1923" to "1930 or later" were provided. In order to have frequencies of reasonable size, it was found necessary to use one set of three categories for veterans and a different set of three categories for nonveterans. The categories were in the order of "older" to "younger" in each case. The categories were as follows:

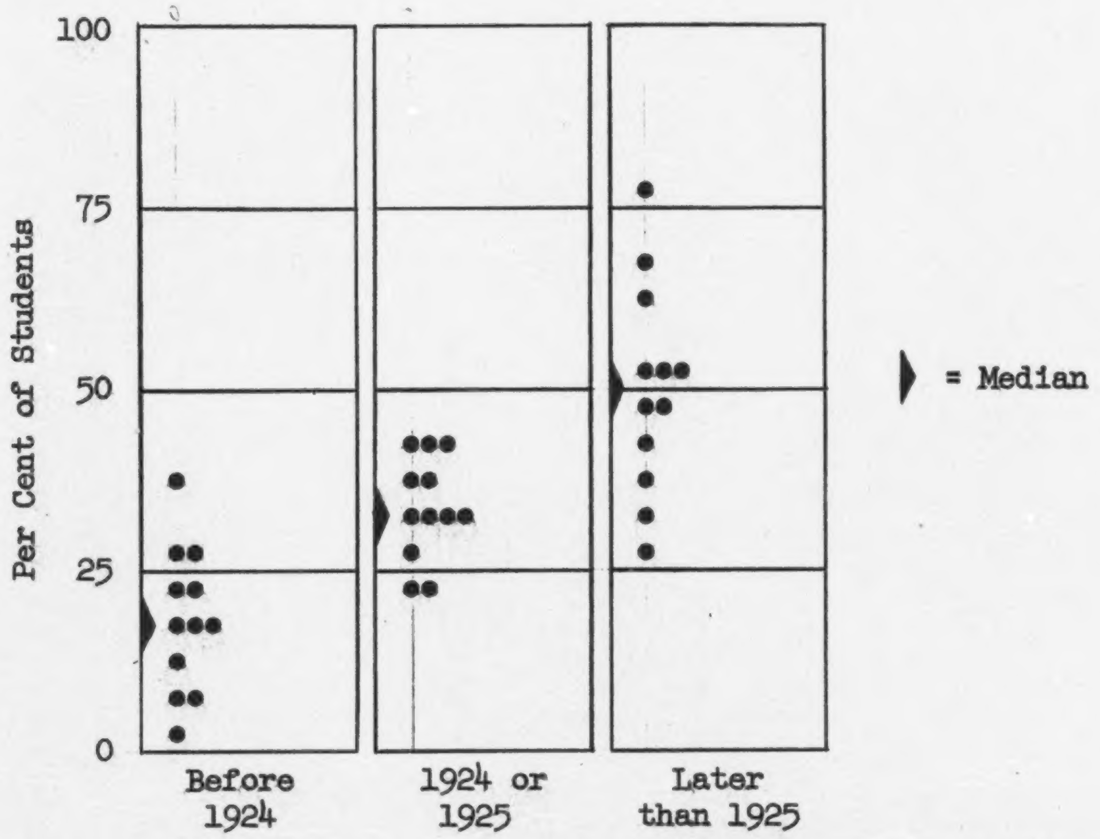
Veterans	Nonveterans
A. Before 1924	A. Before 1928
B. 1924 or 1925	B. 1928
C. Later than 1925	C. Later than 1928

Because of the use of different categories for veterans and nonveterans, it is necessary to present the results in two figures instead of one. Figure 24 shows the general findings for male veterans and Figure 25 for nonveteran male students in the twelve basic groups.

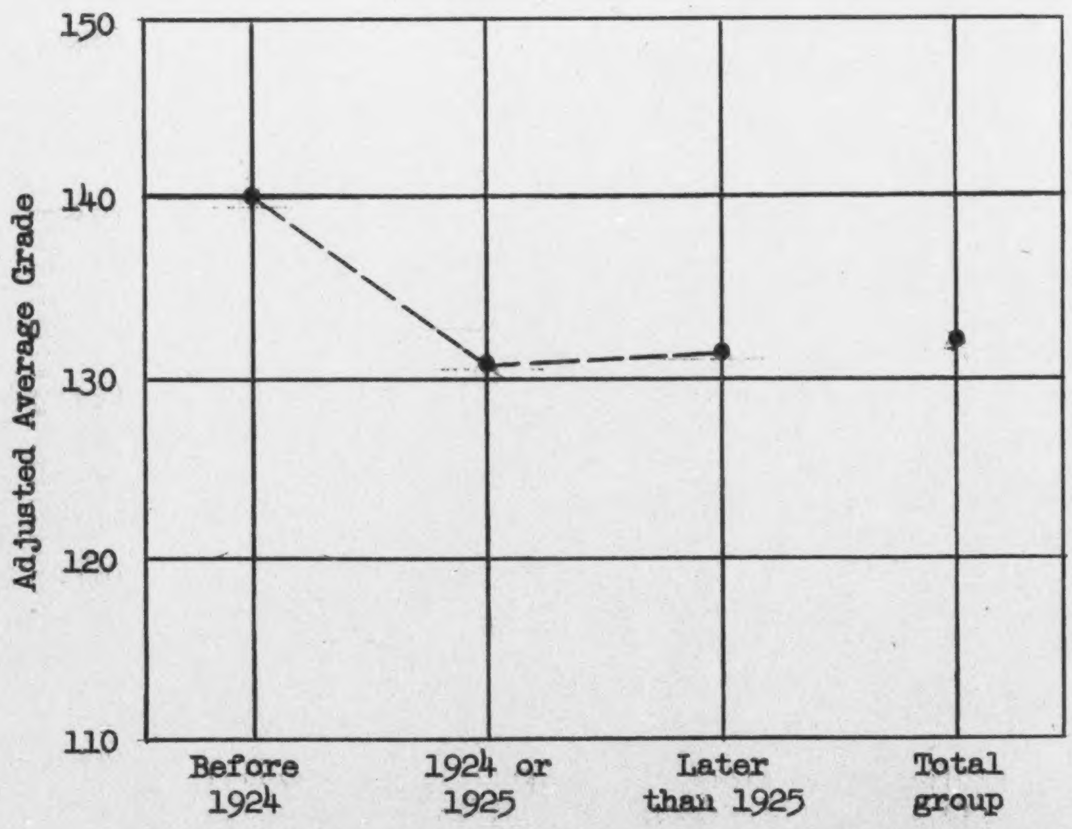
> The typical veteran who entered college as a freshman in 1946 was born in 1925; the typical nonveteran was born in 1928. There is little overlapping in the age distributions of veteran and nonveteran college students. The oldest subgroup of veterans shows a significant tendency to overachieve as compared with younger veterans, while the younger nonveterans exhibit a similar but less marked tendency to earn higher Adjusted Average Grades as compared with older nonveterans. These tendencies can probably be accounted for by selective factors.

So far as the median groups are concerned, about 35 per cent of the veterans were born in 1924 or 1925 and about 50 per cent later than 1925; most of this latter group were born in 1926. In the median nonveteran subgroups, about 70 per cent were born in 1928, almost 25 per cent later than 1928, and only a little more than 5 per cent prior to 1928. There is thus very little overlapping in the age distributions of veteran and nonveteran male students. Female students were quite similar to the male nonveterans with respect to age distribution, although there was a tendency for women to be slightly older. Variability in age is understandably greater for veterans than for the male nonveterans. Veteran students at Adams, Stewart, and Douglas tended to be younger than veterans at other institutions.

Inspection of the median values of the mean AAG's reveals that age is related to Adjusted Average Grade, both for veteran and nonveteran students, but that the direction of the relationship is different for the two subgroups. Among veterans, the older students tended to earn high grades in relation to ability, while for nonveterans the younger students tended to earn the highest AAG's. The mean AAG for the oldest veterans (born before 1924) is significantly higher (at the 1% level) than for veterans in other age groups in three of the twelve basic groups. It is also significantly higher at the Midwest Tech College of Agriculture, among the four additional groups for which AAG's were computed. These oldest veterans excelled other veterans in ten of the twelve basic groups. The trend among nonveterans for younger students to earn higher AAG's is not so striking.

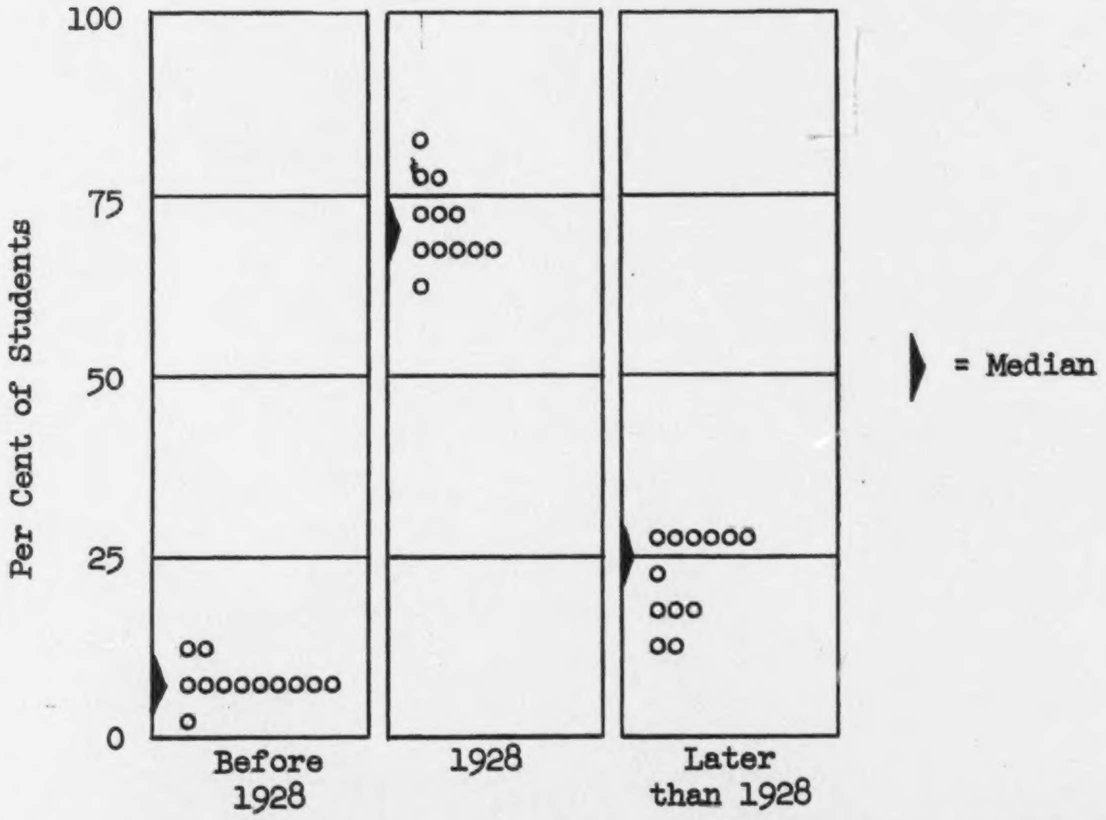


PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE

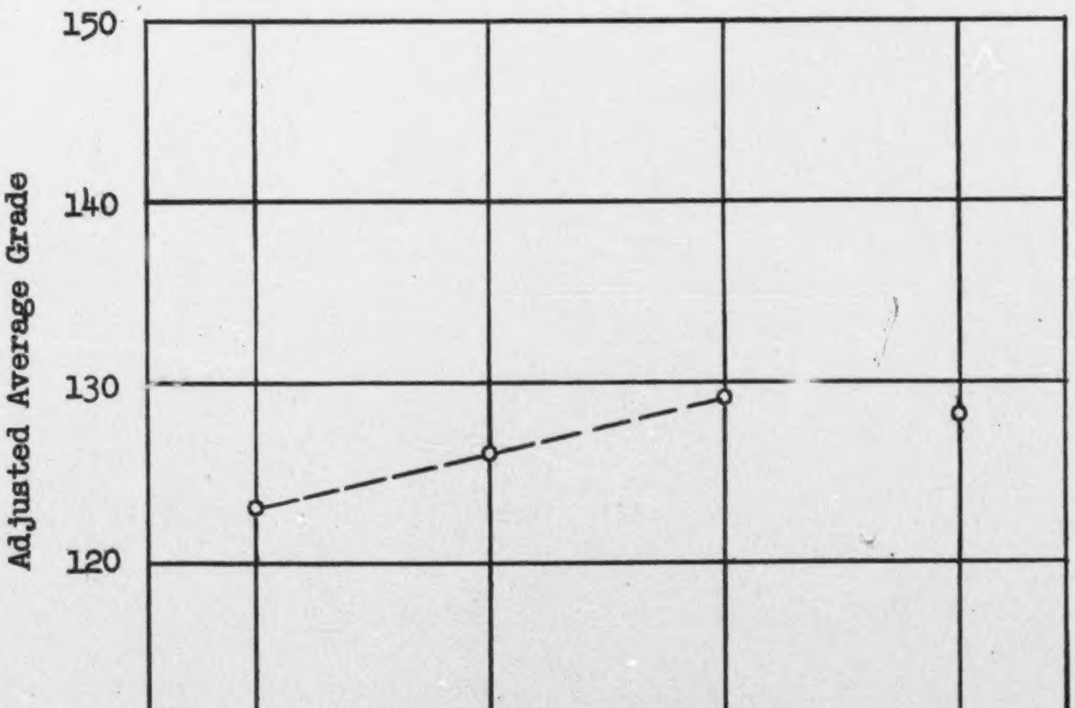


MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 24. YEAR OF BIRTH, MALE VETERAN STUDENTS: ITEM 32



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 25. YEAR OF BIRTH, MALE NONVETERAN STUDENTS: ITEM 32

It seems reasonable to account for the trends on the basis of selective factors. The veterans born before 1924 entered college when they were 23 or older; the typical nonveteran was 18. The older group of veterans would then be at least 27 at the time of graduation. Such students would not be expected to begin a college career unless there were special incentives or unusually strong motivation for undertaking academic work. The superiority of the oldest veteran subgroup probably can be attributed to such selective factors. It may be surmised that this group of veterans may have contributed disproportionately to the favorable impression created by the veteran group upon teachers and administrators.

In the case of nonveterans, selective factors of a different sort were probably at work. It is well-known that a negative correlation is usually found between age and intelligence for students within a particular high school group; this can be accounted for in terms of acceleration of the best pupils and retardation of the poorest. The youngest nonveterans, then, are those pupils whose school progress was accelerated because of more rapid achievement. These students are continuing to show in college the same characteristics which caused their arrival at college at an earlier age.

The question as to whether or not the superiority of veteran students is merely a function of greater age cannot be rigorously answered. There is very little overlap in the age distributions of veteran and nonveteran students; and even if subgroups of veterans and nonveterans alike in age could be found, their comparison would not settle the issue, since such "young" veterans and "old" nonveterans would presumably not be representative of veterans and nonveterans generally. Thus, controlling age in a study of veteran-nonveteran differences would be somewhat analogous to controlling depth of voice in a study of male-female differences in college students. In this study, preference was given to the comparison of veterans and nonveterans chosen to be as typical as possible of their groups; under these circumstances the two groups necessarily were quite different in age. It should be noted that, to the extent that greater age is associated with greater maturity, more direct evidence regarding maturity of attitudes and motivation will be found in later chapters of this report.

From one point of view, however, the findings for this item suggest that greater age, in and of itself, can not account for veteran-nonveteran differences in AAG. Eliminating the oldest group of veterans virtually destroys any correlation between age and AAG in the veterans group, while leaving the "younger" veteran group superior by a substantial (though reduced) amount to the nonveteran group. Although the argument is not rigorous, it makes less attractive the hypothesis that the superiority of veteran students is primarily due to their greater age.

Work Experience

Work experience may reasonably be thought to have a maturing effect on young employees; the possible relation of such experience on veteran-nonveteran differences in AAG was studied in the analysis of Item 9(b).

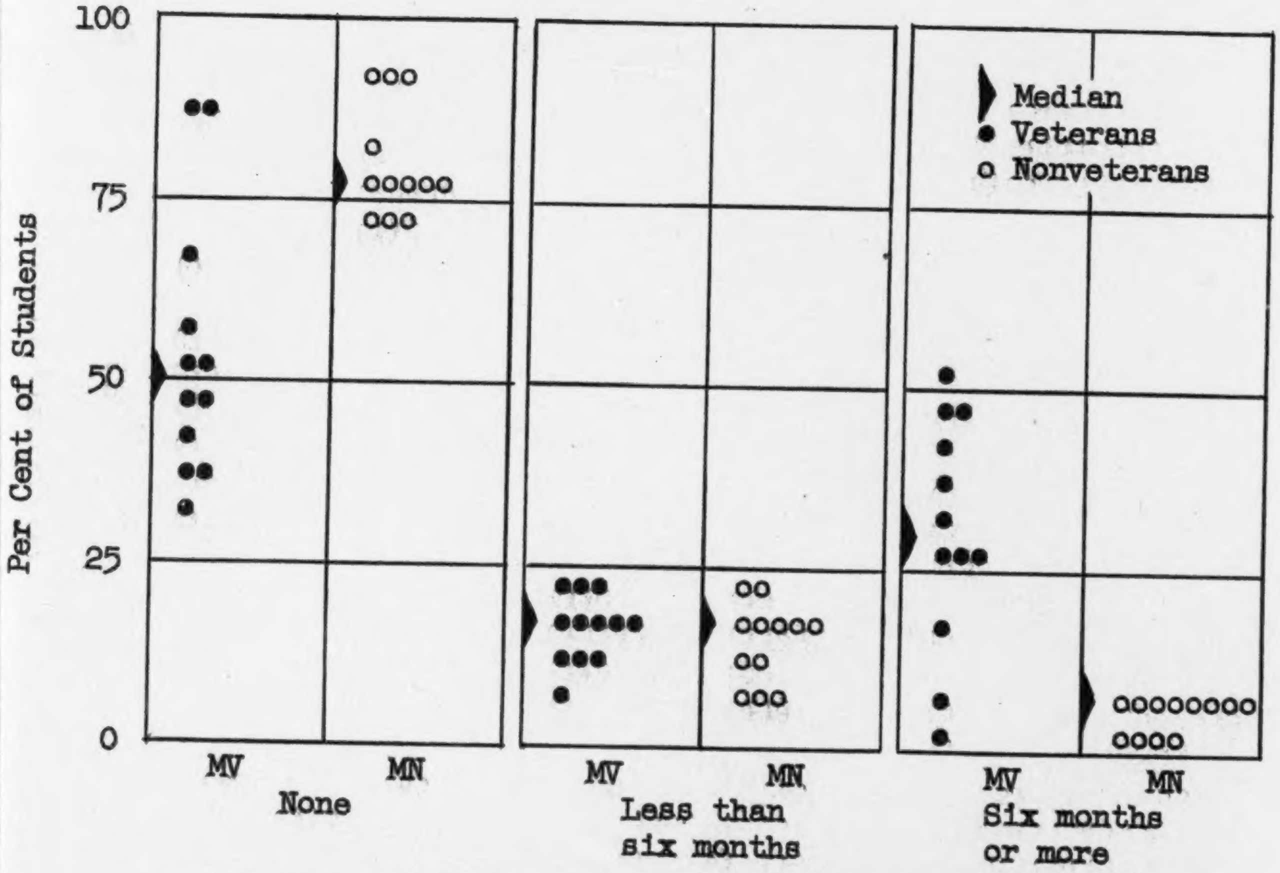
This item asks, "If you worked full-time before entering military service or college, how long were you employed?" In the analysis, the categories were (A) did not work full-time, (B) worked less than six months, and (C) worked six months or more. Item 9(a), which also dealt with work experience, was used to identify individuals without work experience who omitted Item 9(b); such students were included in Category A. The results of this analysis are shown graphically in Figure 26.

> It was found that substantially more of the veteran students had had work experience than was true of nonveterans; half of the male veterans and three quarters of the male nonveterans had not held a full-time job. As might be expected, even fewer of the women students had worked. Generally nonsignificant differences in AAG were obtained, although veterans who had worked six months or more earned slightly higher AAG's than other veterans, and nonveterans with work experience of six months or more earned lower AAG's than other nonveterans.

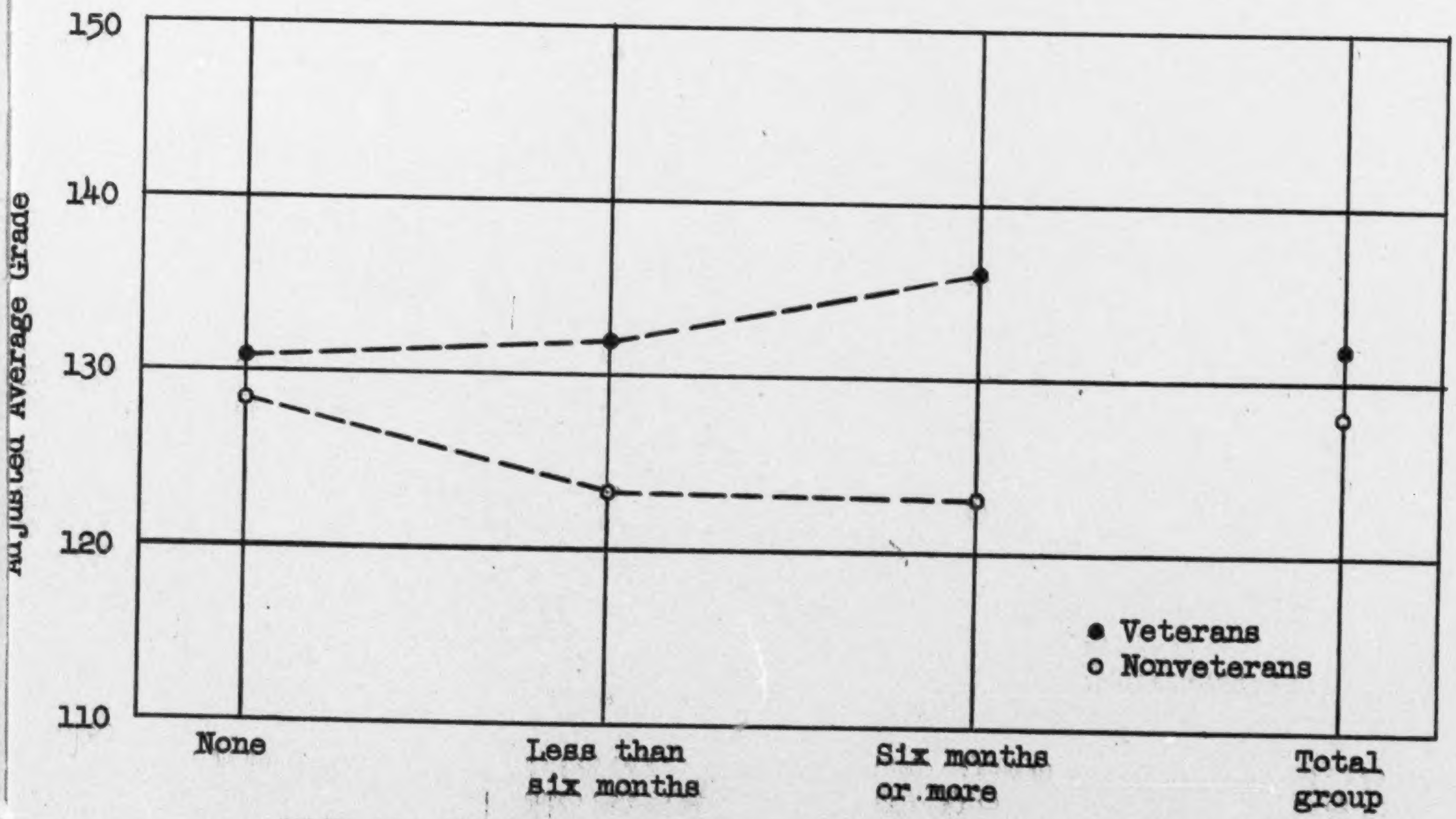
A rather striking difference is found between veteran and nonveteran male students with regard to amount of work experience. In the median veteran subgroup, about 50 per cent reported no full-time employment, while for the median male nonveteran subgroup the percentage was somewhat more than 75. Conversely for those employed six months or more the median percentages were about 30 for veterans and just over 5 for the nonveteran subgroup. Women students reported work experience slightly less often than the nonveteran males.

There was considerable variability among colleges with respect to work experience of students. At Adams, Stewart, and Douglas (of the twelve basic groups) 90 per cent or more of the nonveteran men reported no work experience, while at Evans, Western State, and Midwest City fewer than 75 per cent had not had a full-time job. The range was even greater for veterans: 85 per cent or more at Adams and Stewart had not worked, while at Evans and Midwest City the percentage was only about 35.

The relation of amount of full-time employment to AAG proved to be negligible. Judging from the medians as plotted in Figure 26, the relationship is slightly positive for veterans and slightly negative for nonveterans, although neither trend is significant. When the relation between this item and AAG was considered for each subgroup separately, a significant association was found in two subgroups of veterans (at Adams and Western State), where the students employed six months or more earned a mean AAG which is significantly higher (at the 1% level) than the mean AAG of students in other categories. In none of the nonveteran subgroups were differences found which were significant at the 1% level. Although veterans and nonveterans differed noticeably in amount of work experience, this factor obviously cannot account for veteran superiority in AAG because of the lack of any marked relationship between AAG and amount of work experience.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 26. LENGTH OF FULL-TIME EMPLOYMENT BEFORE ENTERING WAR SERVICE OR COLLEGE: ITEM 9(b)

Size of Community

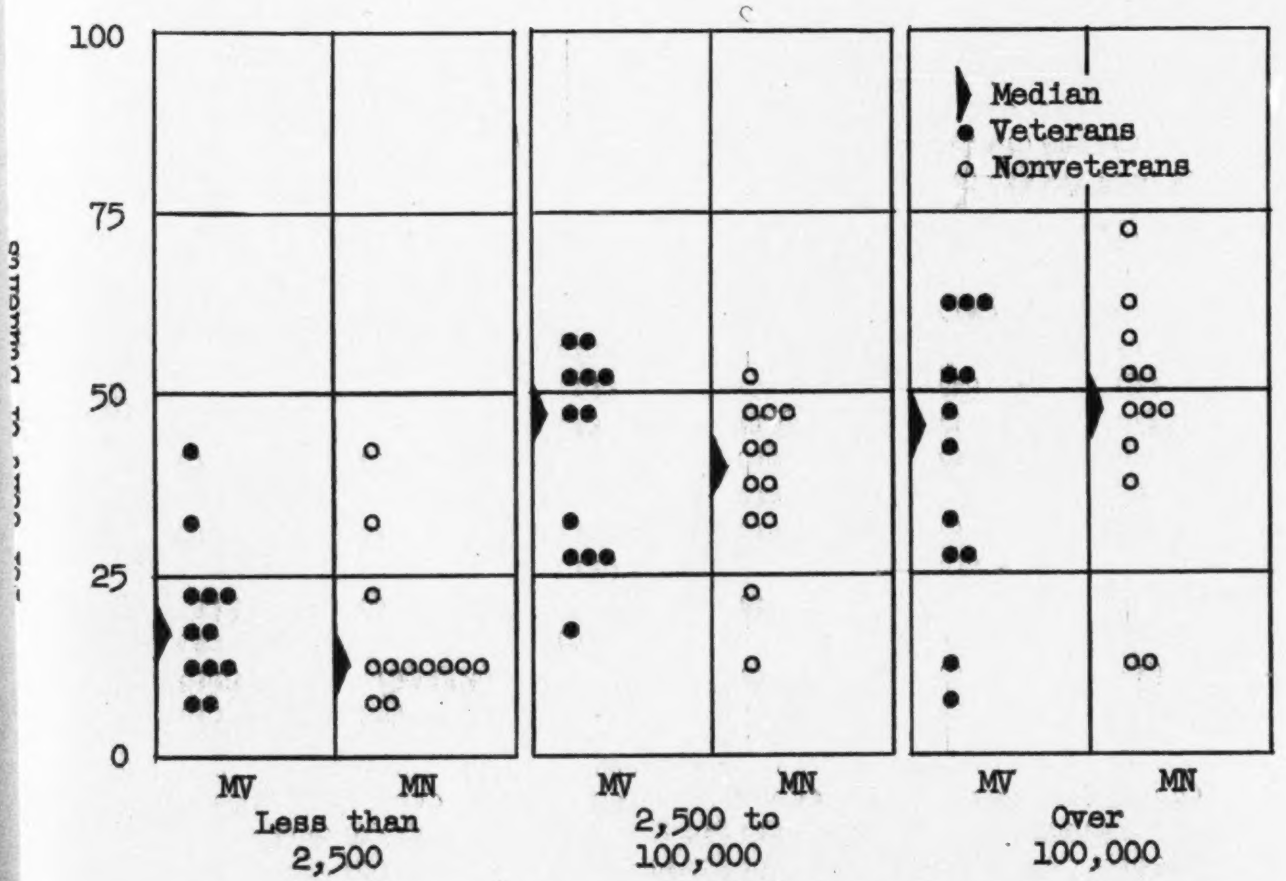
The size of community from which a student came may be pertinent to his college adjustment; accordingly, attention was given to differences between veterans and nonveterans in this respect. For both veterans and nonveterans, the relation of size of community to AAG was studied, and the possible value of this information in accounting for veteran-nonveteran difference was assessed. Size of community might be expected to throw some light on the problem because of the relations of community size to cultural opportunities available and to general quality of secondary education.

Item 31, which dealt with community size, was stated: "How large was the community in which your home was located during the time you were in high school? (If your residence was a suburb or town in a metropolitan area, check the population of the larger area.)" The five choices in the questionnaire were reduced to three categories, in order to avoid extremely small frequencies; the three categories were (A) less than 2,500 population, (B) 2,500 to 100,000 population, and (C) over 100,000 population. The results of the analysis of this item are shown in Figure 27.

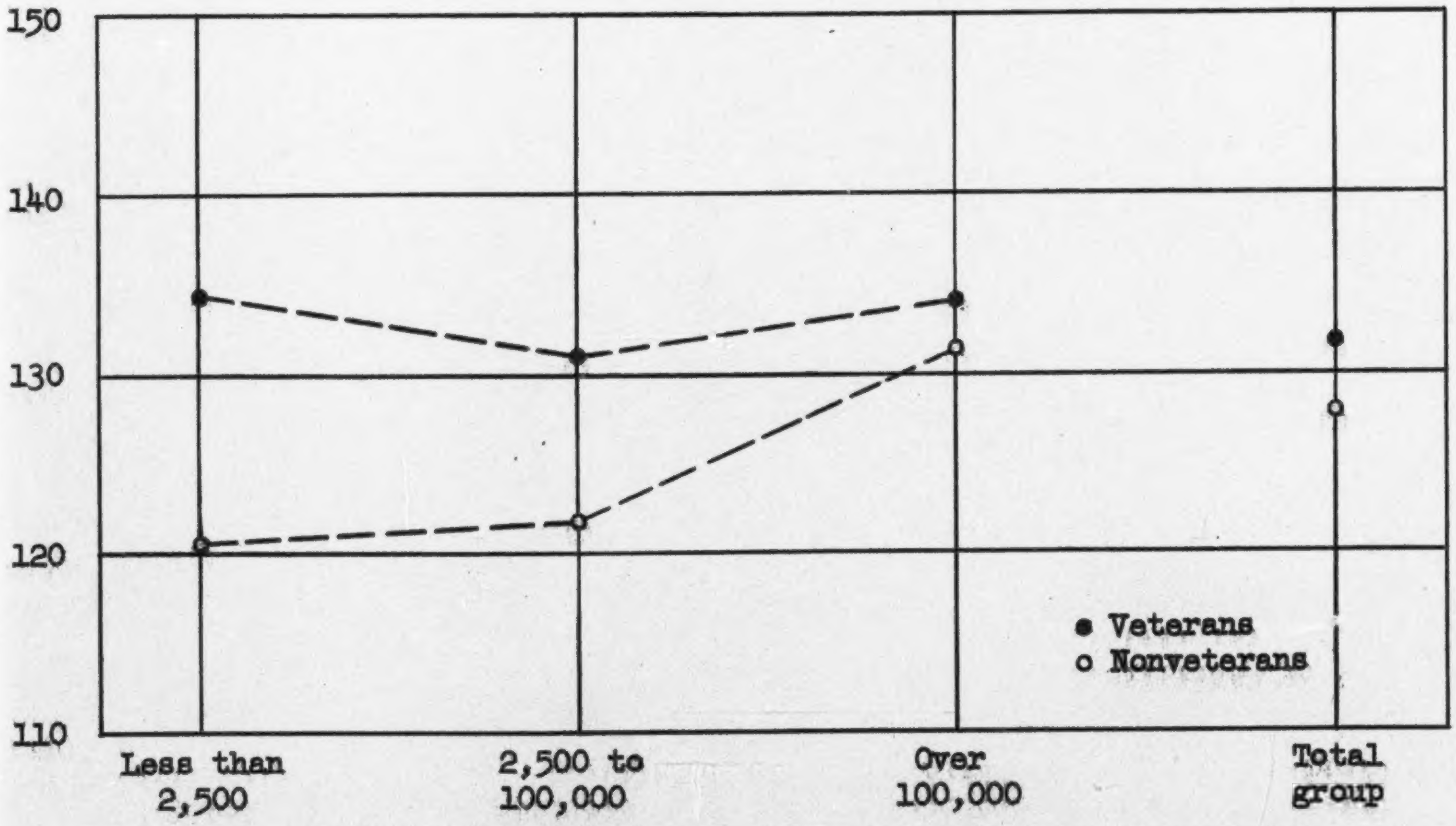
> Although there is considerable variability from college to college, in general it appears that a slightly greater proportion of veterans than nonveterans came from rural areas and from towns and cities of under 100,000 population. Almost half of the male students and a somewhat larger proportion of women had lived in cities of over 100,000 people when in high school. For veterans, grades appear to be unrelated to size of community. Nonveterans from the larger cities tended to obtain higher AAG's than other nonveterans.

As is shown in Figure 27, the differences between veteran and nonveteran male students with regard to size of community are relatively slight. Comparison of the medians reveals a slight tendency for a larger proportion of veterans to come from the towns and cities of less than 100,000 population. It appears that in the median groups only about 15 per cent of the students were from rural homes or from villages of less than 2,500 people. The differences among colleges are very great, however, as would be expected on the basis of the characteristics of the various institutions. At Eastern City, for example, less than 2 per cent of the students had lived in communities of less than 2,500 during their high school years, and more than 95 per cent came from cities of more than 100,000; while at the Midwest Tech College of Agriculture more than two thirds of the students were from the communities of less than 2,500. The proportion of women reporting that they came from small towns or farms was smaller than that for men in practically all of the nine groups where women's questionnaires were analyzed.

The relationship between size of community and AAG is slight, and the nature of the relationship appears to be different for veterans and nonveterans. For veterans, the students from communities of 2,500 to 100,000



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 27. SIZE OF HOME COMMUNITY WHILE IN SECONDARY SCHOOL: ITEM 31

were lowest, so far as the median AAG's are concerned, but the difference is not significant. For nonveterans, the students in the first two categories were similar in mean AAG, while the students from cities of over 100,000 were superior; the mean AAG's for the first two categories are about 120 and for the large cities about 130, in the median groups. In two of the twelve basic groups the large-city students were significantly higher (at the 1% level) in mean AAG than students in the other two categories, and the difference was significant at the 5% level in three more of the groups. In ten of the twelve groups the students from large cities were on the average superior in AAG to students in the other categories; this proportion of the differences in the same direction is significant at the 5% level.

Size of community cannot help to account for veteran superiority in mean AAG because the difference between veterans and nonveterans in frequencies is not great and because the item is not, for veterans, significantly related to AAG.

Among nonveterans, then, there does seem to be a tendency for students coming from cities of over 100,000 to earn higher grades in relation to measured ability than students from smaller communities. One possibility is that students coming from cities were graded more severely during high school, so that their tendency to overachieve might merely reflect this relative undermeasurement. Fortunately, four of the groups had AAG's in which only scholastic aptitude tests were used in allowing for ability. In these four groups, the city students were significantly superior at the 1% level in one instance, at the 5% level in another, were superior in a third, and equal in a fourth to their fellow-nonveterans. In general, these results are so similar to the results for all twelve groups that the hypothesis of relative undermeasurement in high school grades may be rejected. The difference probably cannot be attributed to differences in grading standards between larger and smaller schools.

If it is assumed that students from the cities have a broader background and generally better preparation for academic work, it might be thought that students from smaller communities would gradually overcome their disadvantage as they experienced the richer opportunities offered by the college. Therefore, their grades in college would be higher than was predicted on the basis of ability measures--they would earn AAG's above 130--providing, of course, that college would tend to equalize the differences in background. Such an assumption is not warranted by the findings reported above. It must be remembered, however, that perhaps one year of college is not sufficient to overcome background differences appreciably.

The findings suggest the hypothesis that size of community is not associated with any systematic tendency either to depress or to raise ability measures (defined, for most of the groups, as a combination of aptitude test scores and high school record), but that there is a tendency for city boys to acquire certain characteristics--perhaps more effective study habits or greater motivation--which result in higher initial achievement in college relative to measured ability. It would also appear, since the relationship of AAG to community size disappears for veterans, that whatever advantage the city boys had did not persist through the period of war service.

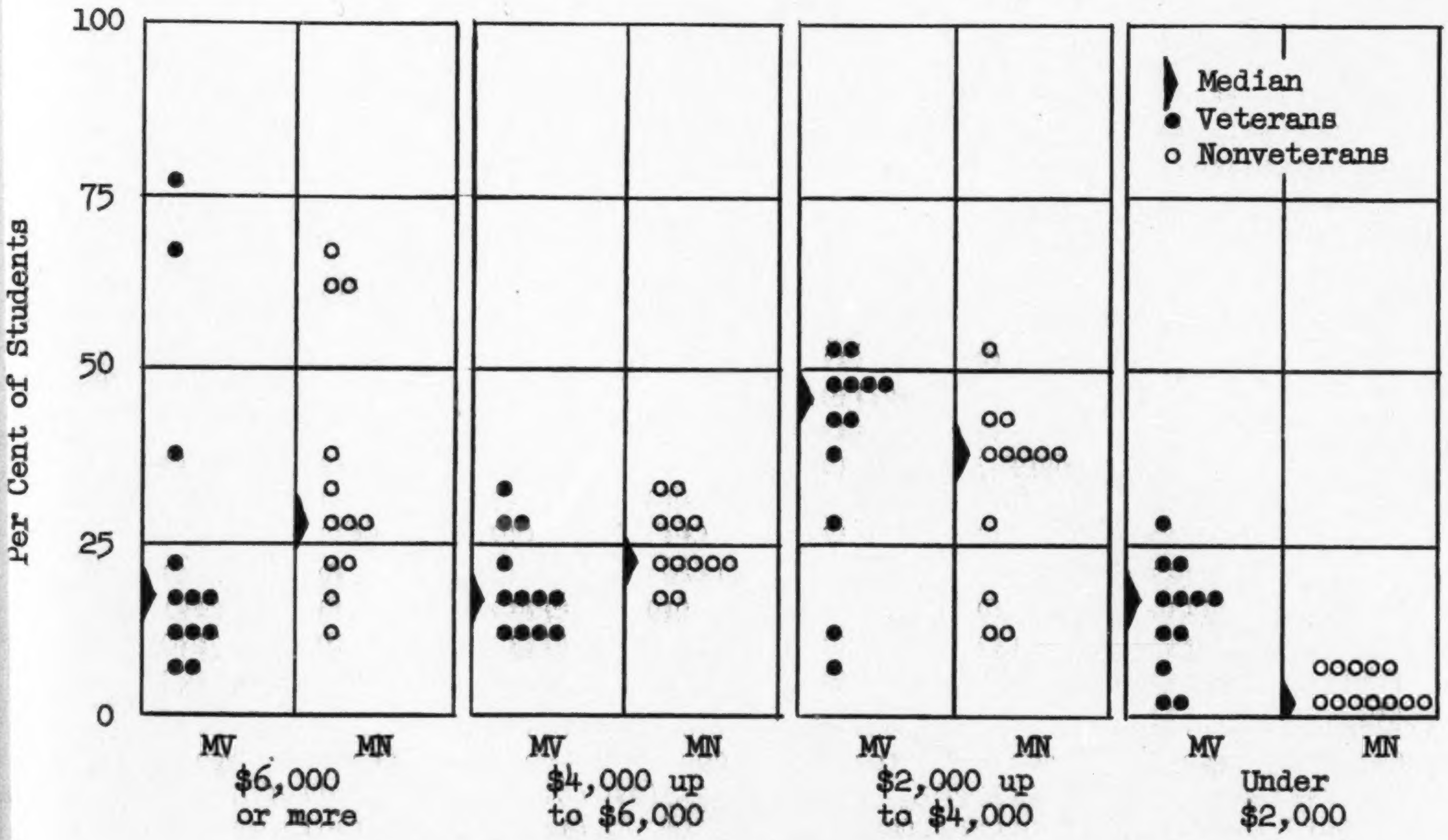
Father's Income

Item 43 asks, "Approximately what was the annual income of the head of your family while you were in high school?" The five choices presented on the questionnaire were reduced to four categories by combining the two choices at the upper end of the income scale. The four categories resulting were (A) $6,000 or more, (B) $4,000 up to $6,000, (C) $2,000 up to $4,000, and (D) under $2,000. Direct comparison of veterans and nonveterans with respect to father's income is unfortunately made ambiguous by the inclusion in the item of the phrase "while you were in high school." Nonveterans were usually in high school until 1946, but the veterans typically left high school two or three years earlier. During these two or three years, incomes in the United States increased considerably. The difference between veterans and nonveterans is undoubtedly affected by this general change. The question was presented in the form used in order to get information pertaining to a time when the student was presumably living at home and more directly affected by family influences. The results of the analysis of the item are shown in Figure 28.

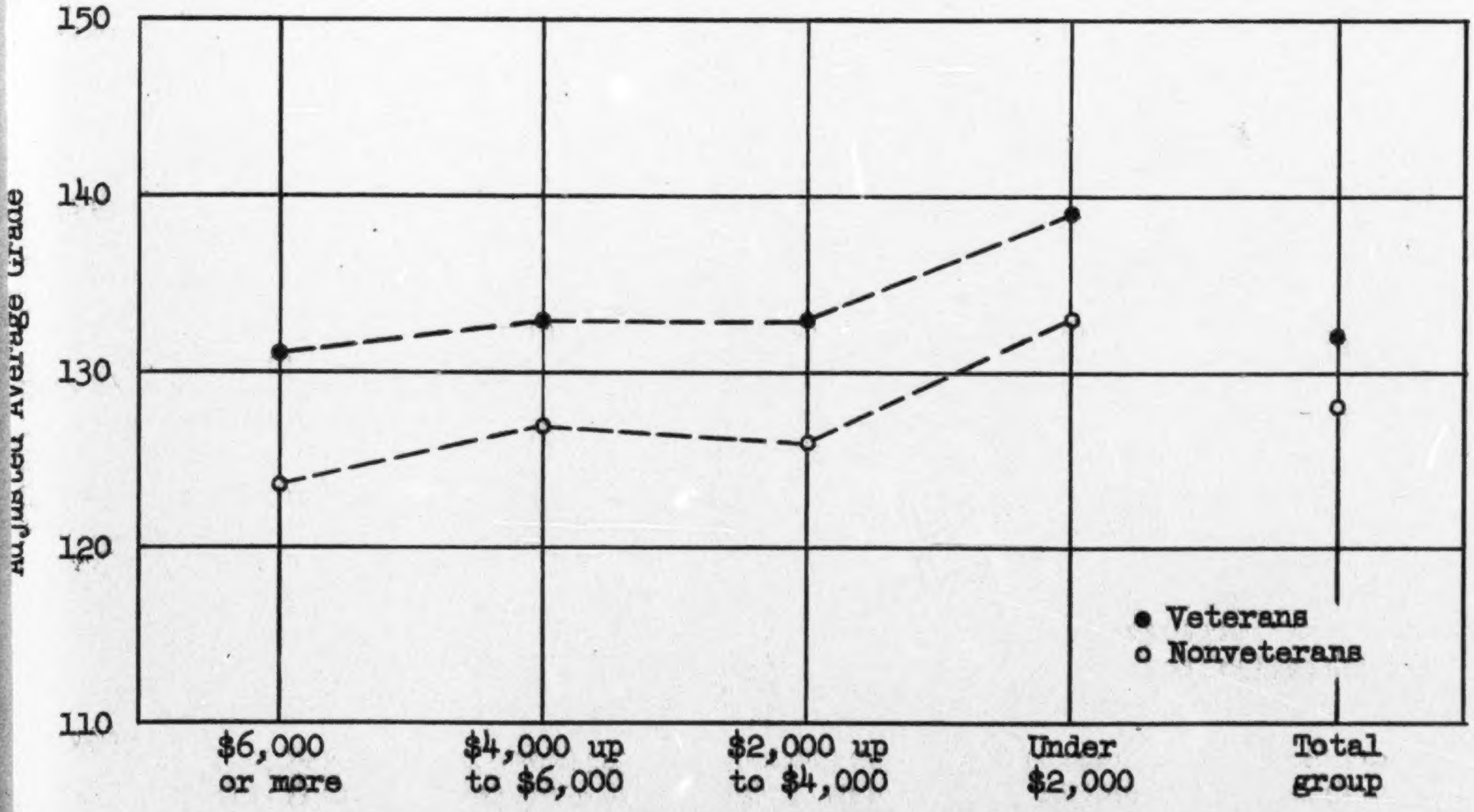
> About half of the nonveteran male and female students estimated their father's incomes at $4,000 or more for the period of their high school attendance, while only about a third of the male veteran students reported this high an income. It should be noted that this difference may have resulted from the upward trend of incomes between the times the two groups were in high school. Considerable variation among colleges with respect to family income was found. Both veteran and nonveteran students from the "under $2,000" families tended to earn higher grades relative to ability than students who reported higher family incomes.

Inspection of the arrowheads representing the median groups in Figure 28 shows a tendency for nonveterans to report higher incomes than the veteran students. Nonveterans were more likely than veterans to report that their father's income was $4,000 or higher. The greatest difference between medians occurs in the "under $2,000" category; for the median group of veterans more than 15 per cent reported a family income of under $2,000, while for the median group of nonveterans less than 5 per cent fell in this category. Although fewer women than men attempted to estimate an income, those who did closely paralleled the male nonveterans. The veteran-nonveteran differences must be attributed, at least in part, to the general trend of incomes during the war period.

The variation among college groups was wide. At Stewart, for example, incomes of $6,000 or more were reported by almost 80 per cent of the veteran and almost 70 per cent of the nonveteran students, while at the Midwest City Engineering College about 10 per cent of the veterans and 15 per cent of the nonveterans fell in this category.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 28. HEAD OF FAMILY'S INCOME DURING STUDENT'S SECONDARY SCHOOL CAREER: ITEM 43

The lower part of Figure 28 shows a tendency among both veteran and nonveteran students for lower family income to be associated with higher AAG. The difference between the students in the two extreme categories is almost 10 AAG units. In only two of the veteran groups is such a tendency significant, however; at Adams and Evans the "under $2,000" students are significantly higher in mean AAG than students in other categories (at the 1% level of significance). Veteran students in this lowest income group are higher in mean AAG than other veterans in nine of the basic groups and lower in one, which is significant at the 5% level. The small numbers of students in this category among the nonveterans make it impossible to discern any trend for these students.

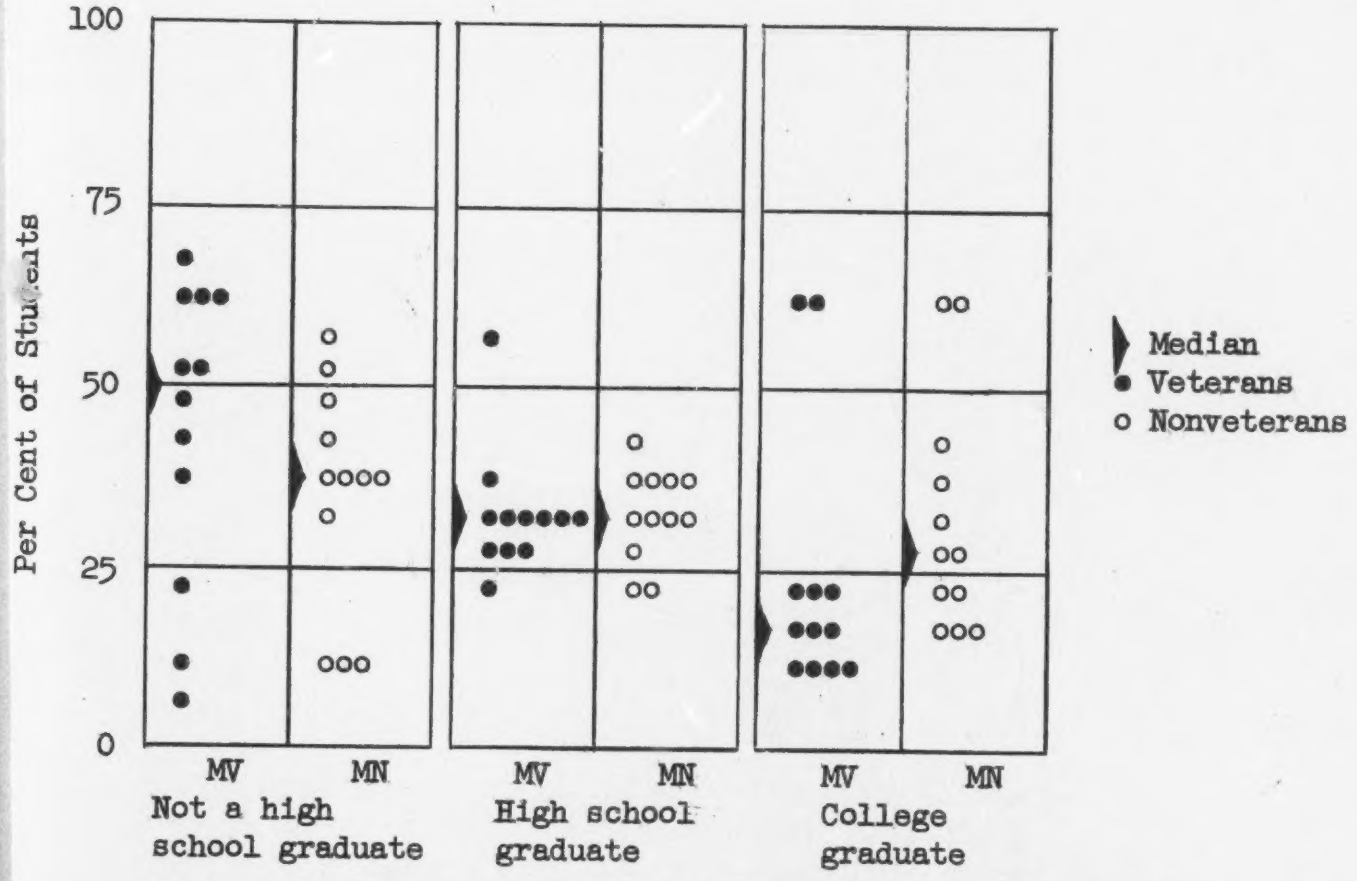
Although the bearing of income differences upon the explanation of veteran-nonveteran differences in AAG is difficult to evaluate from the information available, it may be judged that father's income is not an important factor in accounting for the differences in overachievement between veterans and nonveterans.

The slight but fairly consistent tendency for students from lower income groups to attain higher grades, in relation to ability, than students from the upper income groups has interesting implications for those interested in scholarship programs or other means of subsidizing higher education. Care must be exercised, of course, in generalizing from this finding; the low income students are in many instances those who have been awarded scholarships and they may, therefore, have been selected with unusual care. The great similarity in the trend for veteran and nonveteran students suggests, however, that more is involved than careful selection; scholarships were not ordinarily awarded to veterans. The analysis does show that sons of low income families tend to achieve higher grades relative to their ability than the sons of the more well-to-do families; there is considerable variation in the apparent strength of this tendency in the various colleges.

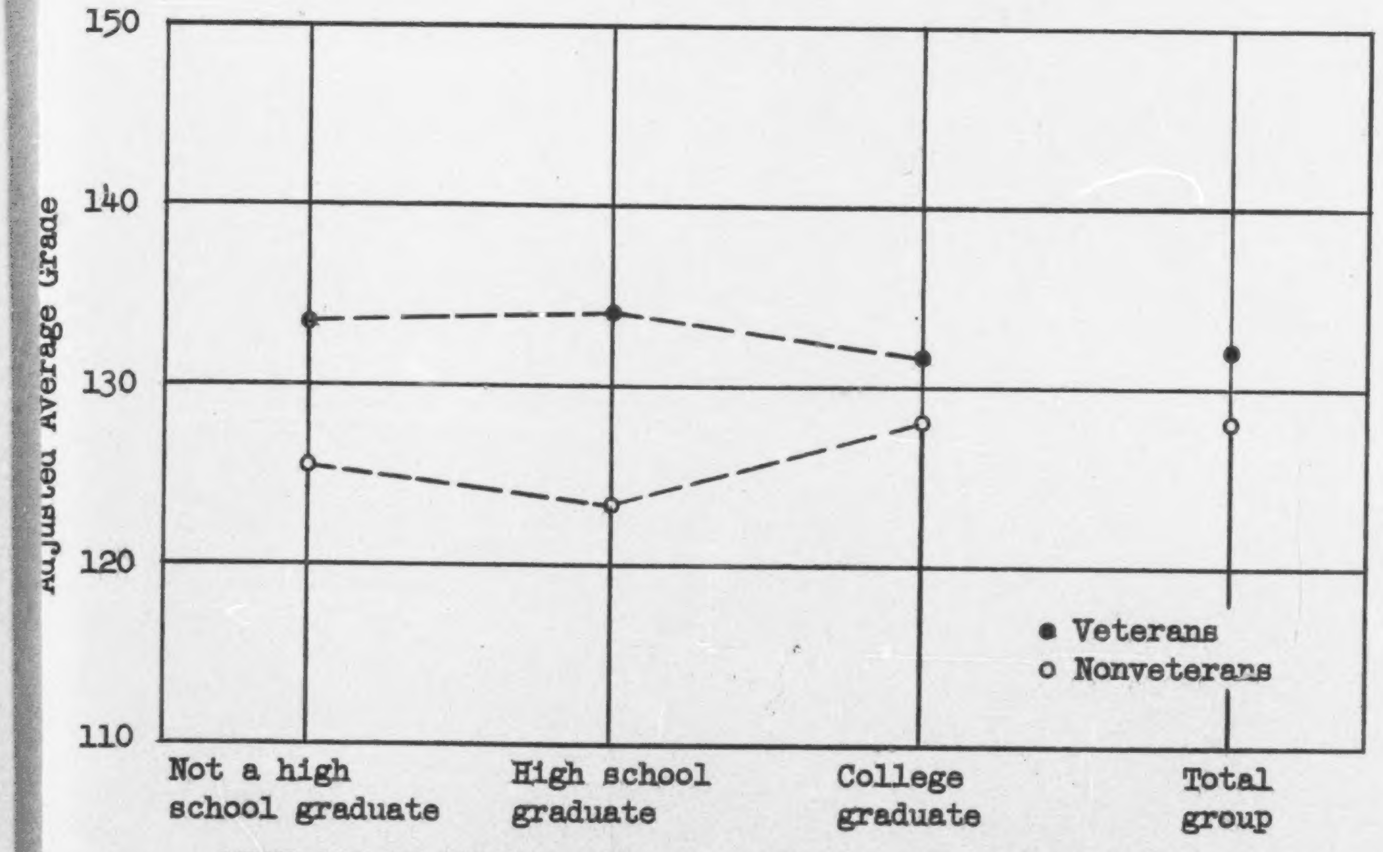
Father's Education

Item 44 was included in order to make possible studies of the difference between veterans and nonveterans with respect to amount of father's education, the relationship of father's education to Adjusted Average Grade, and the extent to which veteran-nonveteran differences can be explained by differences in father's education. The item as stated in the questionnaire was, "How much formal education did your father have?" The six choices offered were analyzed in terms of three categories: (A) not a high school graduate, (B) graduated from high school, and (C) graduated from college. The results are shown graphically in Figure 29.

The fathers of male nonveteran students tended to have had more schooling than the veterans' fathers; about a quarter of the former group were college graduates, whereas fewer than one in six veterans' fathers had completed college. An even larger proportion of



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 29. FATHER'S EDUCATION: ITEM 44

> women students', than of male nonveterans' fathers had received a college degree. Father's education was not related to Adjusted Average Grade to any marked extent, although there was a slight tendency toward underachievement among nonveterans whose fathers had graduated from high school but not from college.

As shown by the position of the arrowheads which indicate median groups, the majority of the fathers were not college graduates; the fathers who had not graduated from high school constituted the largest of the three groups. The fathers of veterans tended to have less formal education than the fathers of nonveterans; in the median group half of the veterans' fathers had not graduated from high school, while less than 40 per cent of the nonveterans' fathers had not graduated. Except for Adams and Stewart, the percentage of veterans whose fathers were not high school graduates was higher than the percentage of nonveterans in the same category for all the basic groups. Similarly, the percentage of veterans whose fathers were college graduates was smaller than the percentage of nonveterans for all the basic groups except Adams, where the percentage was the same. A still higher percentage of women students' fathers were college graduates than were the nonveteran males' fathers.

Amount of education of the father is apparently unrelated to Adjusted Average Grade. For none of the basic groups are any of the category mean AAG's significantly different from the means of other categories. There is a tendency for nonveterans whose fathers were graduated from high school but not from college to underachieve; in ten of the twelve basic groups the Category B mean AAG is lower than the mean for all questionnaire respondents. Differences in education of the father apparently do not help to explain the veteran-nonveteran difference in achievement relative to ability.

Secondary School

Students were asked, in Item 6(a), "What kind of secondary school did you last attend before entering college?" Choices offered were (A) private preparatory school, (B) public high school, and (C) parochial school. Tabulations of responses made it apparent that in most of the colleges in this study, the great majority of students were drawn from the public schools. Consequently, this item will be considered only for three colleges, Adams, Stewart, and Douglas, which draw heavily from private secondary schools; presentation of the findings will be limited to a discussion of the results for these three schools.

> At the three colleges with sufficiently large private school groups, the proportions in the private school category varied from somewhat under a half up to about three quarters of the male students. At

> only one of the three colleges was there a smaller percentage of veterans than of nonveterans from private schools. In two of the three institutions the public school graduates did better in relation to measures of ability than did students from private secondary schools. However, the tendency for public school students to overachieve may result from the previously noted superiority of students from the lowest income families and the likelihood that scholarship students are drawn from this level, rather than any difference in preparation provided by the two types of secondary school in question.

At Adams about two thirds, at Stewart about three fourths, and at Douglas somewhat less than one half of the male students in the freshman group had attended private schools. At Adams and Stewart, the freshman veteran group included a greater proportion who had attended private schools before entering college than did the freshman nonveteran group; at Douglas, this difference was reversed. Among the interrupted veterans and nonveteran sophomores at Adams and Stewart, the private schools contributed a smaller proportion both of veterans and nonveterans than was true for the freshman groups.

In studying the relationship between type of secondary school attended and AAG, four groups were used: these included freshmen from Adams, Stewart, and Douglas, and sophomores from Adams. Since the number of students in these groups who reported attendance at parochial schools is very small, and since only one student in all these groups omitted the item, only the results for private secondary schools need be considered.

Since each of the four groups included both veteran and nonveteran students, eight comparisons of private school graduates with graduates of other types of schools were possible. In seven of the eight comparisons, the private school graduates earned lower AAG's, on the average, than the public school students. In two of these instances the difference was significant at the 1% level; these two instances involved the veterans and the nonveterans at Adams who entered in 1946. In another case (nonveteran students at Stewart), the difference between private and public school graduates was significant at the 5% level. The only subgroup in which the public school graduates were found to be inferior in AAG was the one containing veterans at Douglas; this difference was not significant. Considering the over-all results, obtaining seven out of eight differences in one direction is significant at only the 10% level of confidence. These results, then, indicate some tendency for the kind of student who prepared for college in private schools to underachieve in college. The findings at Adams and Stewart should be interpreted in the light of the fact that students who reported a high income for the head of their family also tended to be underachievers. The fact that consistent differences were found in the two colleges employing College Board tests may also be of some importance in interpreting the results; possibly the findings may come about because the private schools attempt more than public schools to prepare their students for the College

Board tests and thereby produce test scores which slightly overestimate the student's ability. Still another possibility is that public school students were selected more stringently on qualities other than those used as ability measures in this study.

Although this item could hardly be expected to contribute much to the explanation of veteran-nonveteran differences in AAG for colleges in general, it should be noted that there is no indication that the type of secondary school attended aids in accounting for veteran-nonveteran differences in these four groups.

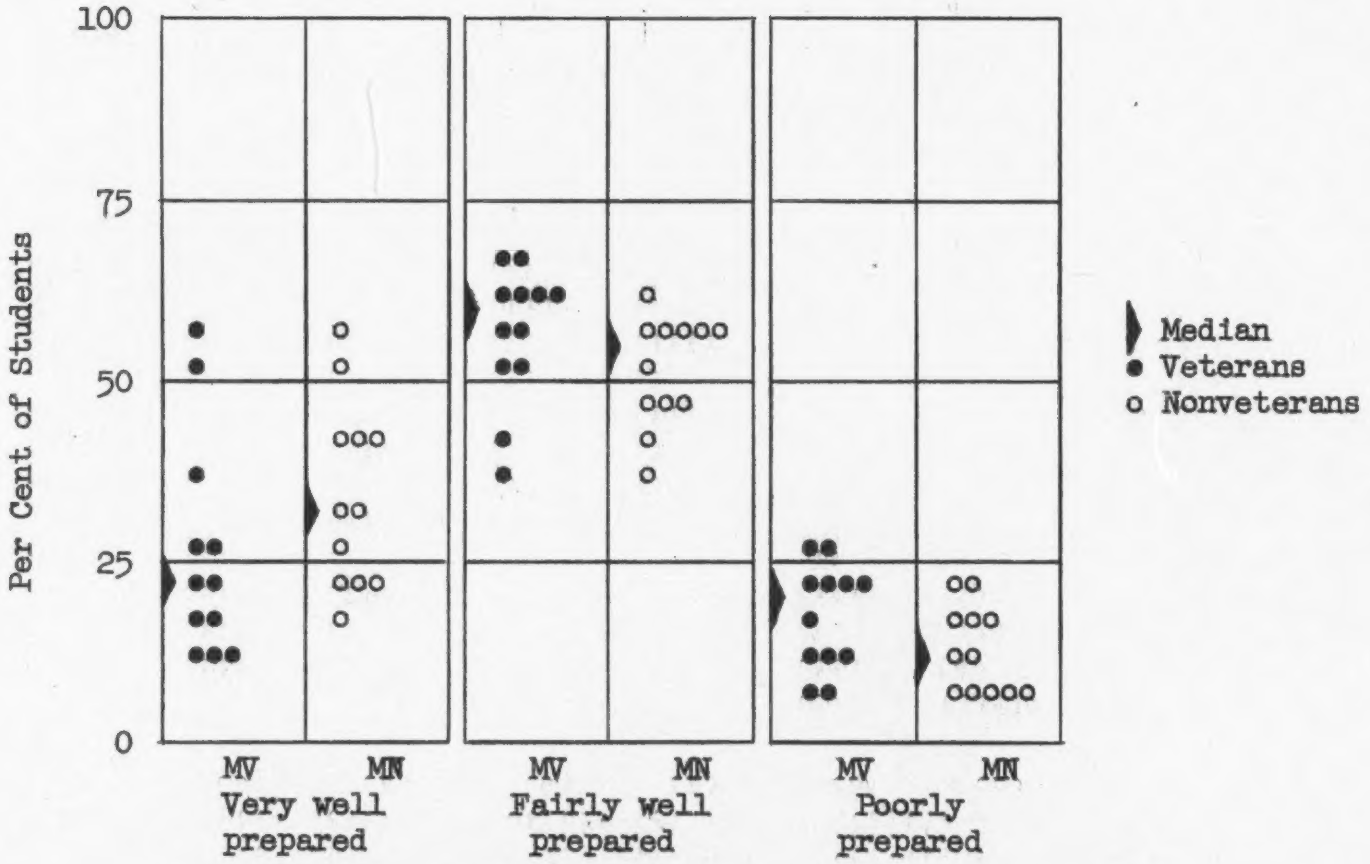
Evaluation of College Preparation

Although the student's evaluation of his preparation for college may tell more about the student than it does about the school which prepared him, such an evaluation may throw some light upon the success of the secondary school in preparing its students for college. Item 26(a) asked, "When you first enrolled in this college or university, how well do you feel that you were prepared, by virtue of your previous education and experience, for getting the most out of your courses?" The choices offered were (A) very well prepared, (B) fairly well prepared, and (C) poorly prepared. Results for this item are given in Figure 30.

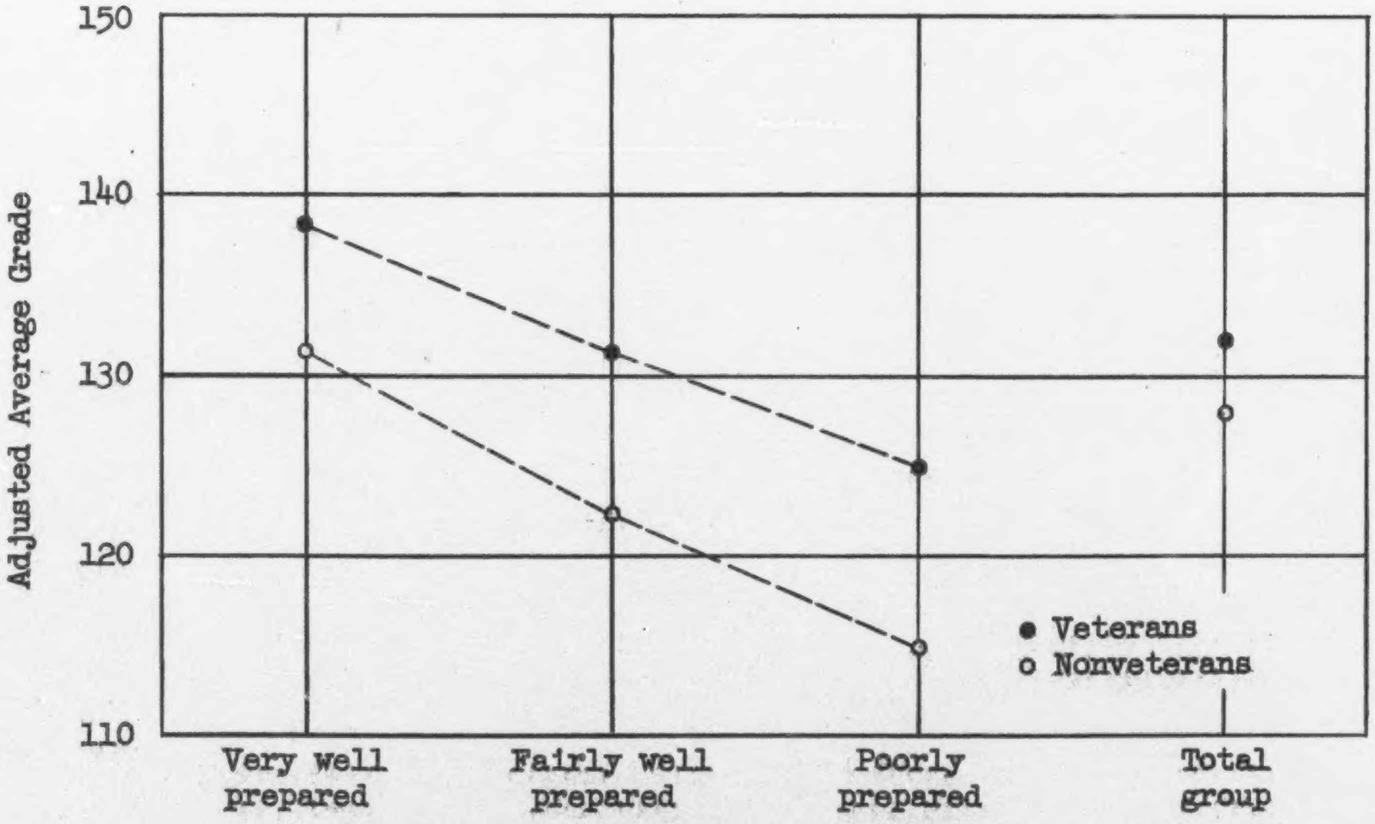
> In general the typical veteran believed that his college preparation was only fairly adequate; the typical nonveteran (male and female) held a slightly more favorable view. There is some tendency for higher AAG's to go with more favorable attitudes toward preparation; the trend is clearer for nonveterans than for veterans. The difference between veterans and nonveterans in AAG seems to be little affected by the characteristics involved in this item.

A majority of both veterans and nonveterans in the typical college group considered themselves "fairly well prepared." However, nonveterans showed a greater tendency than veterans to consider themselves "very well prepared," perhaps because of the recency of their secondary school training. Women students closely resembled male nonveterans in their estimates of how well they were prepared for college. The fact that only about 10 per cent of nonveterans considered themselves "poorly prepared" (in the median college group) may be taken either as an endorsement of the secondary school or as an indication of the confidence of youth.

For both veterans and nonveterans there appeared to be a fairly consistent relationship between AAG and evaluation of previous preparation. Nonveterans who reported that their college preparation was poor earned lower AAG's than the other nonveterans in eleven out of the twelve basic groups; in the twelfth group, they equalled the general average. The veterans who reported that their preparation was poor were below the other



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 30. EVALUATION OF PREPARATION FOR COLLEGE: ITEM 26(a)

veterans in AAG in nine of the twelve groups. The median of the mean AAG's is in agreement with this trend. For veterans, the median of the "very well prepared" group is almost 140 as compared with 125 for the "poorly prepared" group. The corresponding figures for nonveterans are about 130 and 115. Students who thought themselves very well prepared for college were significantly higher in AAG, at the 1% level, in two veteran and one nonveteran engineering school groups. This finding suggests that the association may be stronger for students in engineering than for those in liberal arts.

The usefulness of this item for explaining veteran-nonveteran differences in AAG turned out to be negligible when evaluated by the sign test. This was true even though, on the average, the veterans were inclined to select somewhat more often than nonveterans the response which is associated with underachievement.

Housing

There is much reason to believe that a student's college experience is influenced in various ways by his living quarters. To determine whether living arrangements might be related to AAG, students were asked in Item 30 "Where are you living at the present time?" Choices offered included (A) with parents or near relatives, (B) college dormitory, (C) fraternity house, (D) rooming or boarding house, (E) apartment or house (self-rented or owned) and (F) other arrangements. Results for this item are shown only in Appendix Table 30.

> While types of living arrangements varied widely from college to college, the two predominant categories were "living with parents or near relatives" and "living in dormitories." Among male students, the former was reported more frequently by veterans, the latter by nonveterans; women students named both more often than either male group. Type of housing had no marked relation to AAG; however, for veterans, renting or owning one's own home seemed to be favorably related to academic achievement, while living with parents or relatives was associated with underachievement. For nonveterans, dormitory residents tended to earn slightly higher AAG's than students with other housing arrangements.

The diversity of the sixteen colleges included in this study comes out clearly when the replies to this question are examined. For this reason material based on this item was used in Chapter III to help describe the colleges. When the basic groups are viewed as a whole, it appears that the most frequent arrangements were "living with parents or near relatives" and "living in dormitories." These two plans accounted for the majority of men students in all of the basic groups except Harris, Central State, and Midwest Tech.

At Harris, the majority of the freshman men were living in fraternity houses; at Central State and Midwest Tech the living arrangements were quite diverse. When median groups are compared we find that proportionately more veterans than nonveterans lived with relatives or in an apartment or house which they rented or owned, and that a greater proportion of nonveterans than of veterans lived in college dormitories or in fraternity houses. Women students' living arrangements were not so varied; nine out of ten lived either with relatives or in dormitories, more frequently the former.

General results on the relationship between various types of living quarters and AAG are complicated by the fact that some arrangements are virtually nonexistent in certain groups. Accordingly, when the number of students in a group who report a particular plan dropped below ten, that group was excluded from the comparison. Medians of the mean AAG's were not computed for this item. No clear-cut advantage appears for any type of living quarters in the twelve basic groups. There was some suggestion that living with parents or relatives was an unfavorable arrangement for veterans, since veterans giving this response made lower AAG's than other veterans in eight groups out of ten. For nonveterans, dormitory life seems somewhat favorable, since nonveterans living in dormitories were above other nonveterans in AAG in five instances, tied in three instances, and below them in none. In the eight groups of veterans who owned or rented their house or apartment, superior AAG's characterized six groups out of eight with one tie. Although none of these trends can be considered statistically significant, each of them seems plausible, particularly the last, which fits the hypothesis that greater personal responsibility may go with higher AAG.

When the sign test was applied to the data to determine whether this item might aid in accounting for veteran-nonveteran differences in achievement relative to ability, the results were found not to be significant.

Conclusions

The findings on the various background factors considered in this chapter lead to a number of statements describing various characteristics of veteran and nonveteran students. These students typically had never had a civilian job on a full-time basis; but the proportion who had held a full-time job was considerably greater among the veterans than the nonveterans. There was considerable variation among the various colleges, especially for the veteran subgroups, with regard to the proportion of freshmen with previous work experience. The students typically came from small towns or cities; relatively few reported having lived on farms or in villages of less than 2,500 population while attending high school. The head of the family was likely to have had an annual income between $2,000 and $4,000 while they were in high school; there was, of course, marked variation in the average income from one college to another and within a particular college. Veterans tended to report lower family incomes than nonveterans; this finding must be discounted somewhat, however, in view of shifts in average income during the war years. Almost half of the students reported that their fathers had not completed high school; fathers of veterans had, on the average, less formal education than fathers of nonveterans. Marked variation occurred from college to college in the proportion of students whose fathers were college graduates. Except in three of the colleges, the great majority of students were products of the public high school. The typical veteran considered himself fairly well prepared for college, while the typical nonveteran took a somewhat more favorable view of his preparation.

A number of background items showed some relationship to overachievement. There was a tendency, especially among nonveterans, for high AAG to be associated with residence in a large city while attending high school. There was also some tendency for high AAG to characterize students coming from relatively low-income families. The relationship of age to AAG is different for veterans and nonveterans; the older veterans excelled in AAG, while among nonveterans there was a tendency for the younger students to be the overachievers. There is some indication that private school students tended to underachieve in college, although the evidence is insufficient to justify a definite conclusion. Amount of full-time civilian work experience, amount of formal education completed by the father, and type of living arrangement at college had no apparent relation to AAG. A rather clear-cut and statistically significant relationship was found between the nonveterans' evaluation of their preparation and AAG; for veterans, the trend was in the same direction but was less distinct.

None of the background characteristics discussed in this chapter can be said to help account for the general tendency for veterans to achieve higher grades relative to ability than nonveteran students. While veterans and nonveterans differ with regard to certain of the characteristics, these characteristics are not related to AAG in such a way as to permit the interpretation that the veteran-nonveteran difference in AAG would be noticeably changed if the two subgroups were alike with respect to these characteristics.

RESEARCH BULLETIN

RB-50-15

ADJUSTMENT TO COLLEGE

A STUDY OF 10,000 VETERAN AND NON-VETERAN STUDENTS IN 16 AMERICAN COLLEGES

Chapter VI. Some Factors Related to Motivation.

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and

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Educational Testing Service

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ch 23, 1950

Chapter VI

SOME FACTORS RELATED TO MOTIVATION

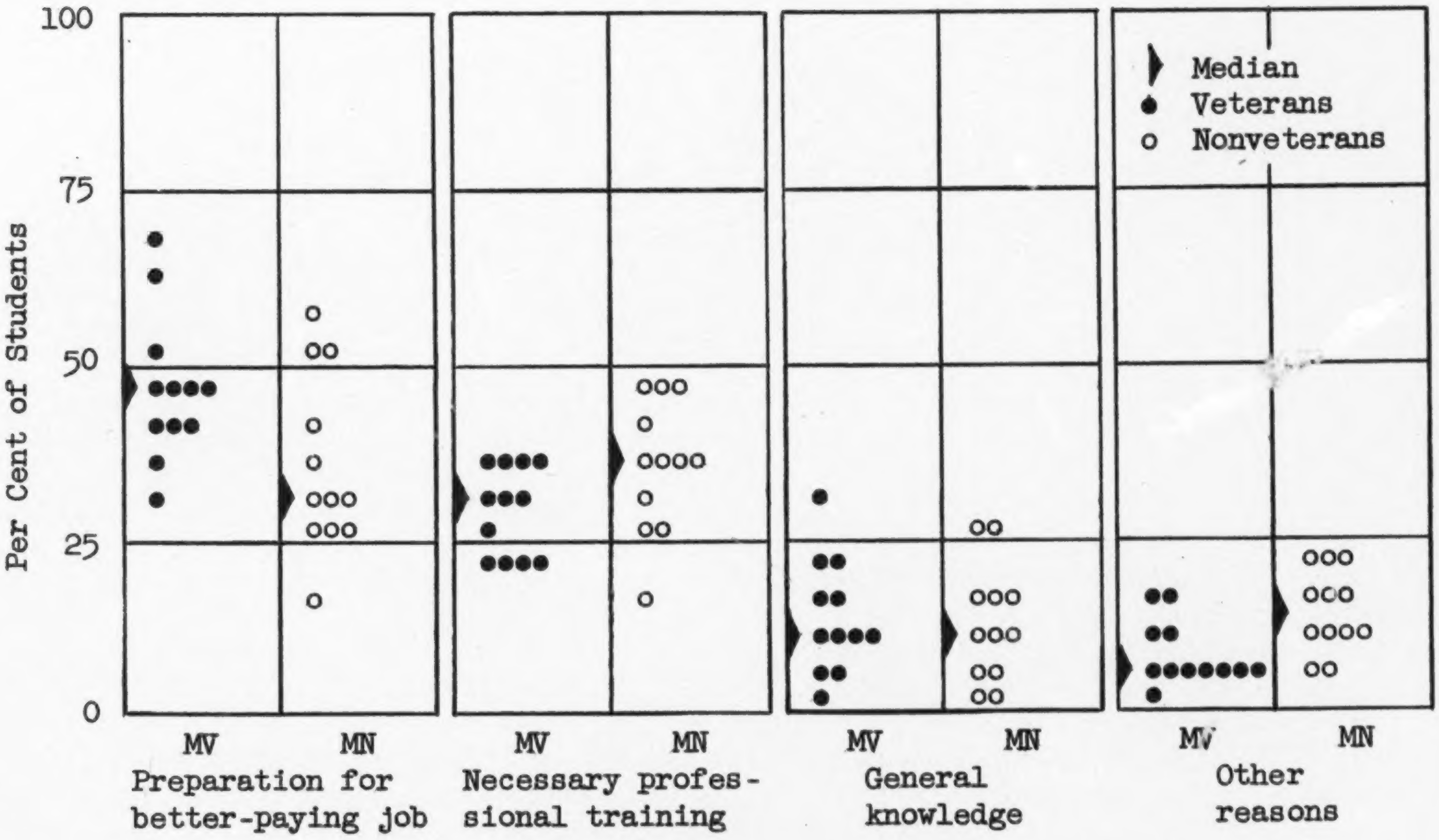
The hypothesis that the superiority of veteran students in college grades relative to ability may be accounted for by increased motivation, which in turn results from greater maturity or from military service, deserves serious consideration. Veteran students may, for example, have more definite vocational objectives or greater realization of the importance of college for advancing their careers. It is obviously impossible to measure differences in motivation in any precise way by means of such a crude technique as a questionnaire. Nevertheless, a number of items were included with the hope that any gross differences in motivation would be revealed. These items have to do with such areas as reasons for going to college, vocational plans, plans with regard to acceleration of progress through college, and adjustment to the demands of college work.

Reasons for Going to College

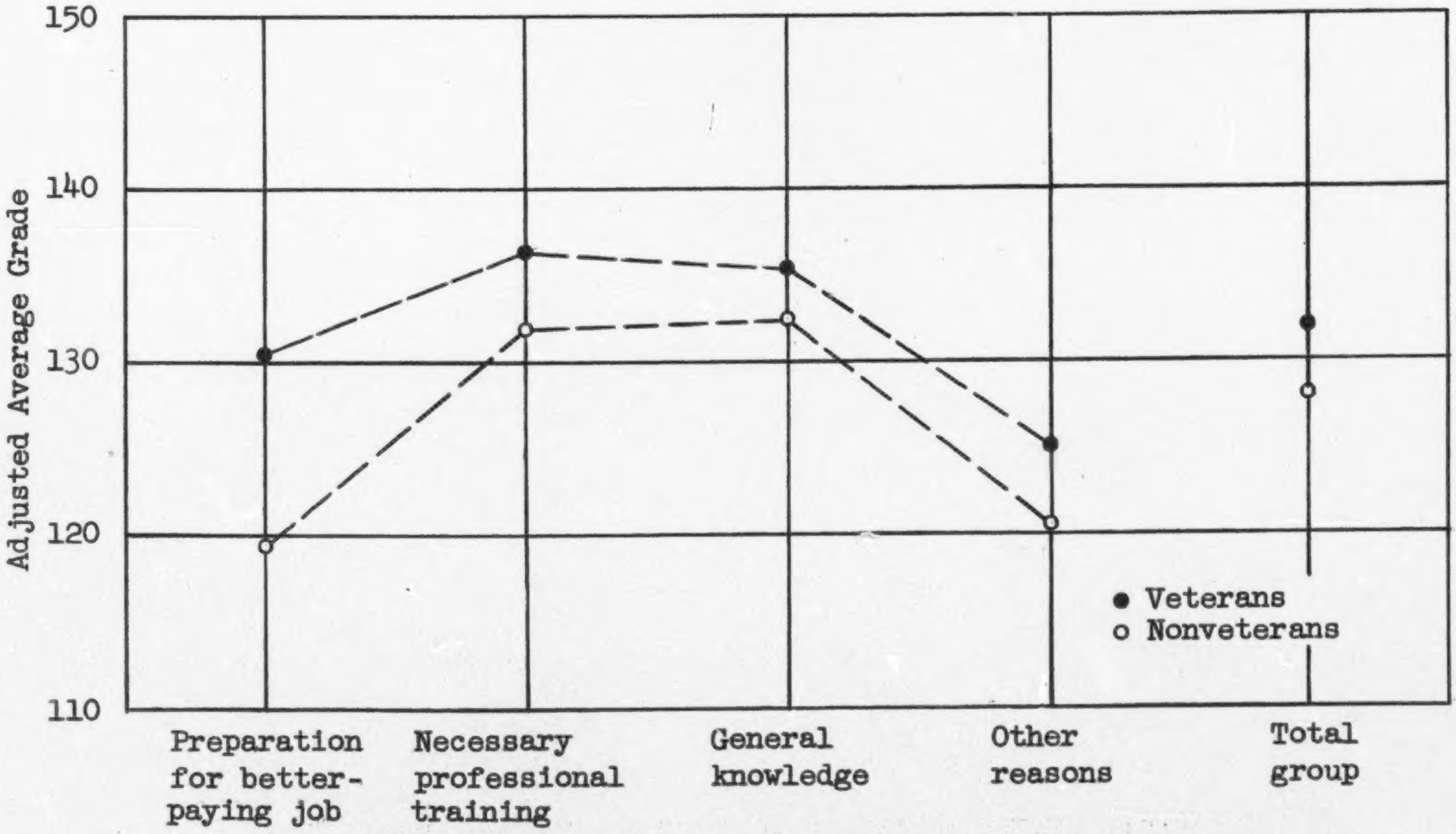
Item 10 asks, "What would you say were the chief reasons for your coming to college?" Eight reasons were listed, and the student was instructed to indicate the one which best expressed his most important reason by 1, and the second and third most important reasons by 2 and 3. Only the first choice was used in the analysis.

For purposes of analysis, the following categories were used: (A) "I wanted to prepare myself for a better-paying job than I would otherwise be able to get," (B) "A college degree is necessary in order to enter the profession I have chosen," (C) "I wanted to increase my general knowledge," and (D) other reasons. The other reasons were the remaining choices offered: "wanted a chance to enjoy college life," "wanted to make social contacts and develop my social skills," "wanted a chance to find out what line of work I would be most interested in," "my family and friends expected me to come," and "coming to college just seemed the logical thing to do." The results are shown graphically in Figure 31.

> Veterans seemed to be motivated more often than nonveterans by a desire to prepare for a better-paying job; nonveterans more often said they wanted training for a profession. Women students much more often than men said they wanted to increase their general knowledge, and more often gave other reasons, many of which are related to social motives. Male students who went to college for necessary professional training or for general knowledge earned higher grades in relation to ability than those who went for a better-paying job or for other reasons; however, veterans who considered



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 31. CHIEF REASONS FOR ATTENDING COLLEGE: ITEM 10

> getting a better-paying job their primary reason did not underachieve nearly as much as did nonveterans who put that reason first.

There are noteworthy differences between veterans and nonveterans with respect to reasons for going to college, according to these findings. The reason most commonly reported by veterans was preparation for a better-paying job. In eleven of the twelve basic groups this reason was given more frequently by veterans than by nonveterans. Finding eleven out of twelve differences in the same direction would be expected by chance less than once in a hundred times. For nonveterans, the most commonly given reason was to obtain necessary training for professional work; this reason was given by nonveterans more often than by veterans in ten of the twelve groups. Possibly the veterans, being older, were less willing to spend additional years in professional graduate schools. To increase general knowledge was given infrequently by both subgroups; in the median group the percentage is about 15. The "other reasons" were given more often by nonveterans in eleven of the twelve subgroups.

The desire to qualify for better-paying jobs was more popular with engineering students than with those enrolled in liberal arts; the top three dots in the figure, both in the veteran and nonveteran columns, represent the engineering schools. Students at Adams and Stewart gave this reason less often than students at other colleges; they tended more often than other groups to give "general knowledge" as the chief reason for going to college. Women students apparently did not resemble men very closely in their motivation for going to college; they far more often gave "general knowledge" as their chief reason, and they also gave "other reasons" more often than the men.

Reference to the lower portion of the figure shows that the item bears a fairly close relation to Adjusted Average Grade. Students giving professional training or general knowledge as their reasons for attending college earned higher grades in relation to ability than do students who attended in order to prepare for a better-paying job or for other reasons. The differences are not significant for most of the groups, although both veterans and nonveterans at Adams who gave professional training as the chief reason are significantly higher (at the 1% level) in AAG than other students, and those giving "other reasons" are significantly lower. At Stewart nonveterans giving better-paying jobs as the reason are significantly lower than other nonveterans. In eleven of the twelve nonveteran groups, the mean AAG for the professional training category is higher than the mean AAG for students in the remaining categories. The relationship of the item categories to AAG is very similar for veterans and nonveterans, except that preparation for a better-paying job is not associated with low AAG for veterans to as great an extent as it is for nonveterans.

The item does not help in accounting for the tendency for veterans to earn higher AAG's than nonveterans, since the veterans are not more numerous than nonveterans in item categories which are associated with high AAG's.

Vocational Plans

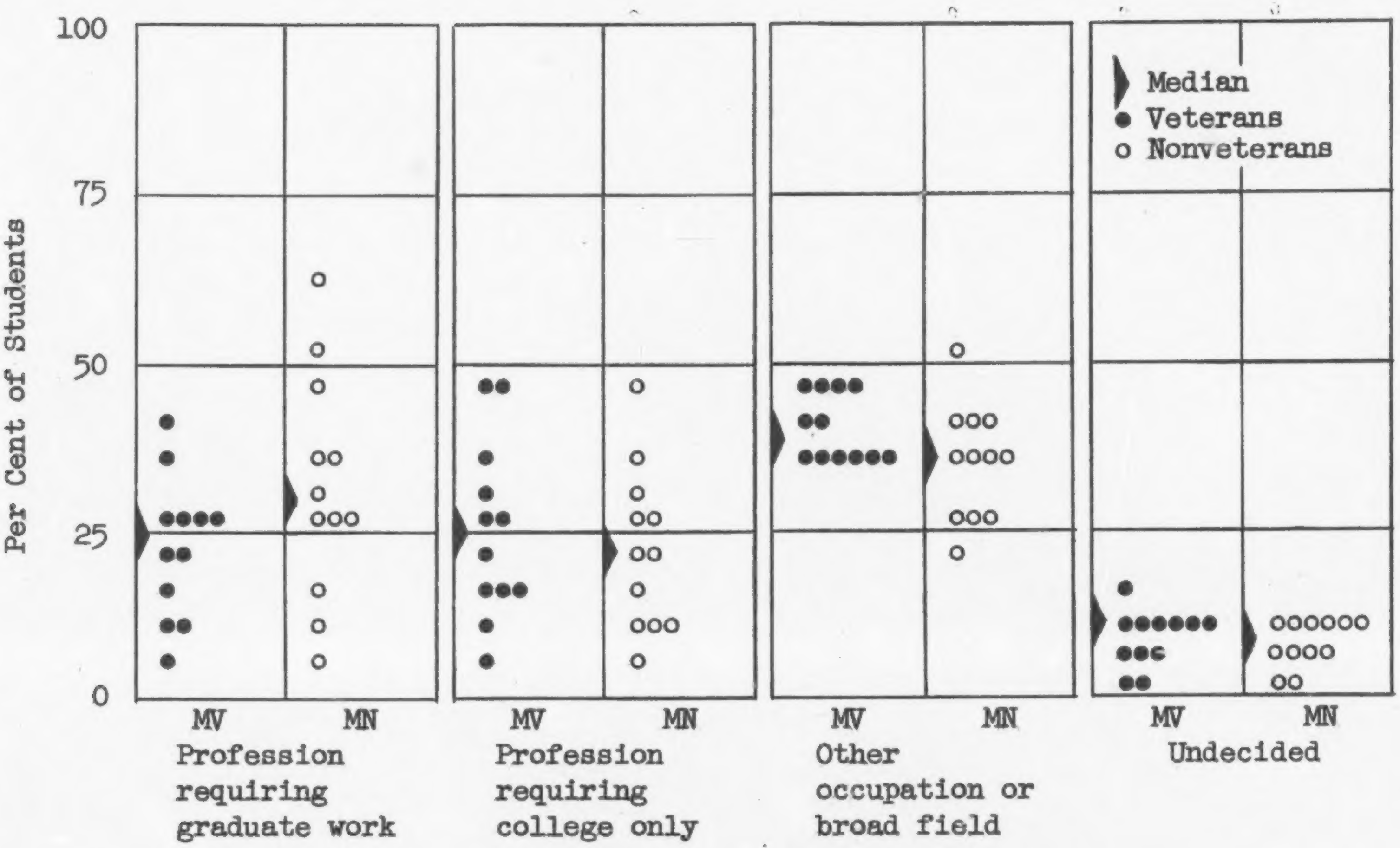
Several of the questionnaire items are related to vocational objectives. These items have to do with the kind of vocational objective, the certainty of this vocational plan, and the importance ascribed to college graduation and to college grades in relation to vocational opportunities.

Vocational Objective. Item 11 is a free-answer item: "What kind of work are you planning to do after you finish your studies? (Describe the job as specifically as you can.)" Four categories were used in coding the responses; the instructions which were prepared for the coders are shown in Appendix A. The four categories may be briefly described as follows: (A) the profession named is one requiring graduate study; (B) the profession named probably requires a college degree but not necessarily any graduate training; (C) other professions or occupations not classifiable under (A) or (B) were named; or broad fields such as business, agriculture, civil service, or politics were mentioned; or the respondent stated that he was not planning to work; and (D) markedly different alternatives were being considered or the respondent said he was undecided. The results of a study of the accuracy of the coding were given in Chapter II. A summary of the Item 11 analysis is shown in Figure 32.

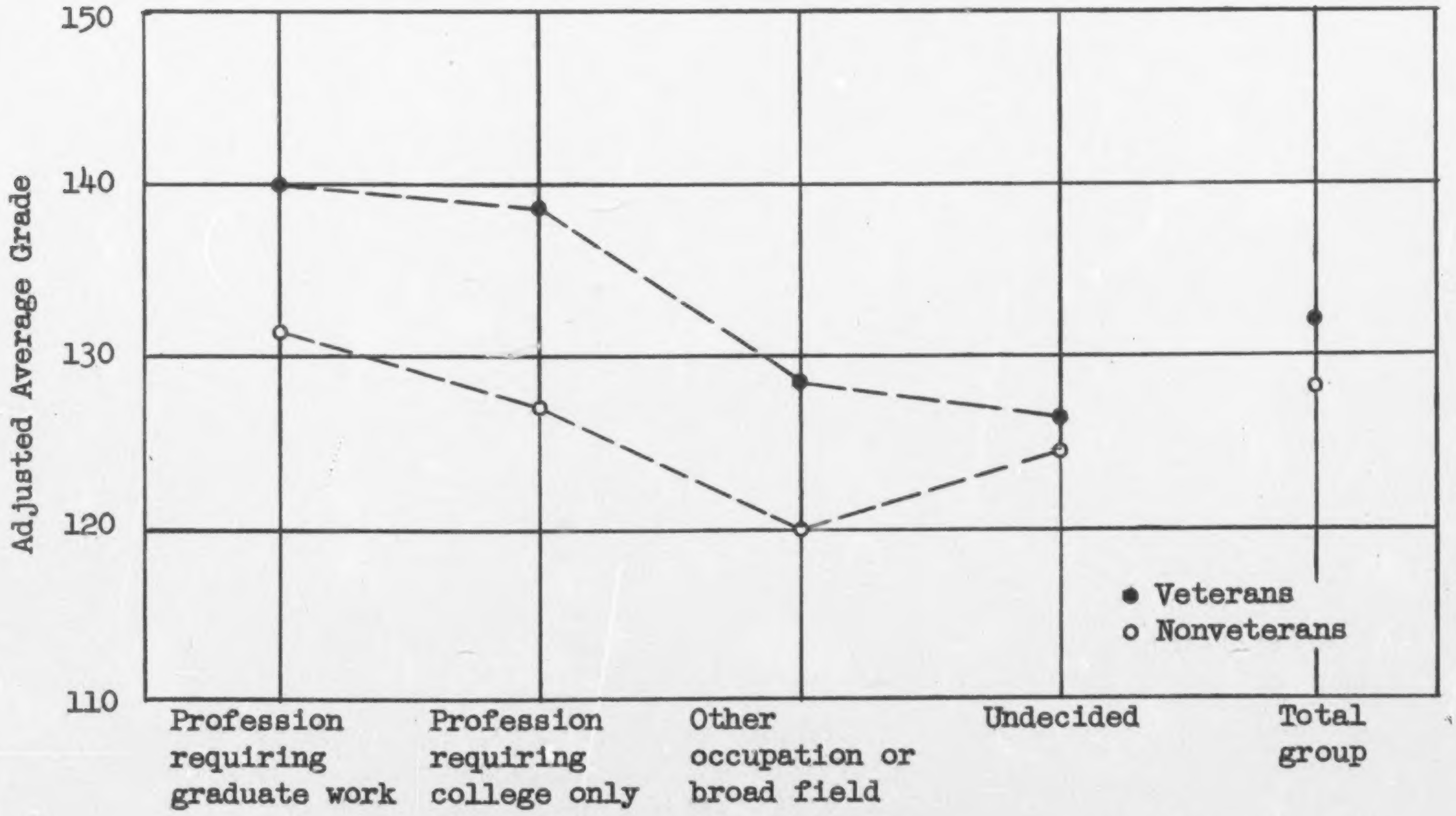
> The distributions of responses for veterans and for nonveteran students were very similar, although there was a tendency for nonveterans to name occupations requiring graduate training more often than veterans. Women students named jobs requiring graduate work considerably less frequently than did men. For both veterans and nonveterans, higher AAG was associated with choice of professions requiring greater amounts of educational training.

The most common type of response, both for veterans and nonveterans, was the rather miscellaneous category C. In the median group more than 35 per cent of both veterans and nonveterans were in this category. Jobs requiring graduate study and jobs requiring a college degree but not graduate study were chosen about equally often; the median percentage in each of these categories was about 25. Less than 15 per cent were in the undecided category. There are in general only minor differences between veterans and nonveterans with respect to the medians, as indicated by the positions of the arrowheads in Figure 32; but nonveterans named occupations requiring graduate training somewhat more often than did the veterans.

Variability among colleges is especially great with respect to per cent giving professions requiring graduate training. At one college, Miller, almost 65 per cent of the nonveterans are in this category, while in the engineering schools the percentage drops to about 10. Women students contemplated professions requiring graduate study far less often than did men.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 32. VOCATIONAL OBJECTIVE: ITEM 11

The relationship of the item to Adjusted Average Grade is shown in the lower part of the figure. For both veterans and nonveterans there is a tendency for the lines to slope downward to the right. Categories A, B, and C form a continuum roughly ordered with respect to amount of training required for the occupation, and higher AAG is associated with greater amounts of required training. Individuals who are undecided about vocations tend to earn low AAG's. Differences are highly significant at Adams for all of the first three category means, and significant differences (at the 1% level) are also found for veterans planning careers requiring graduate study at Stewart and Midwest Tech. The mean AAG for students choosing professions requiring graduate study is higher than the mean AAG of other students in ten of the twelve groups for veterans and in nine of the twelve groups for nonveterans. The Category C students (other professions or occupations, or broad fields) tend to be lower than other students; they are lower in mean AAG for eleven groups of veterans and all twelve groups of nonveterans. Such consistency of results is highly significant. Category C tends to be a "catchall" category, because of the inclusion of "broad fields"; if it contained only jobs which did not require college training, the difference in mean AAG might be even greater.

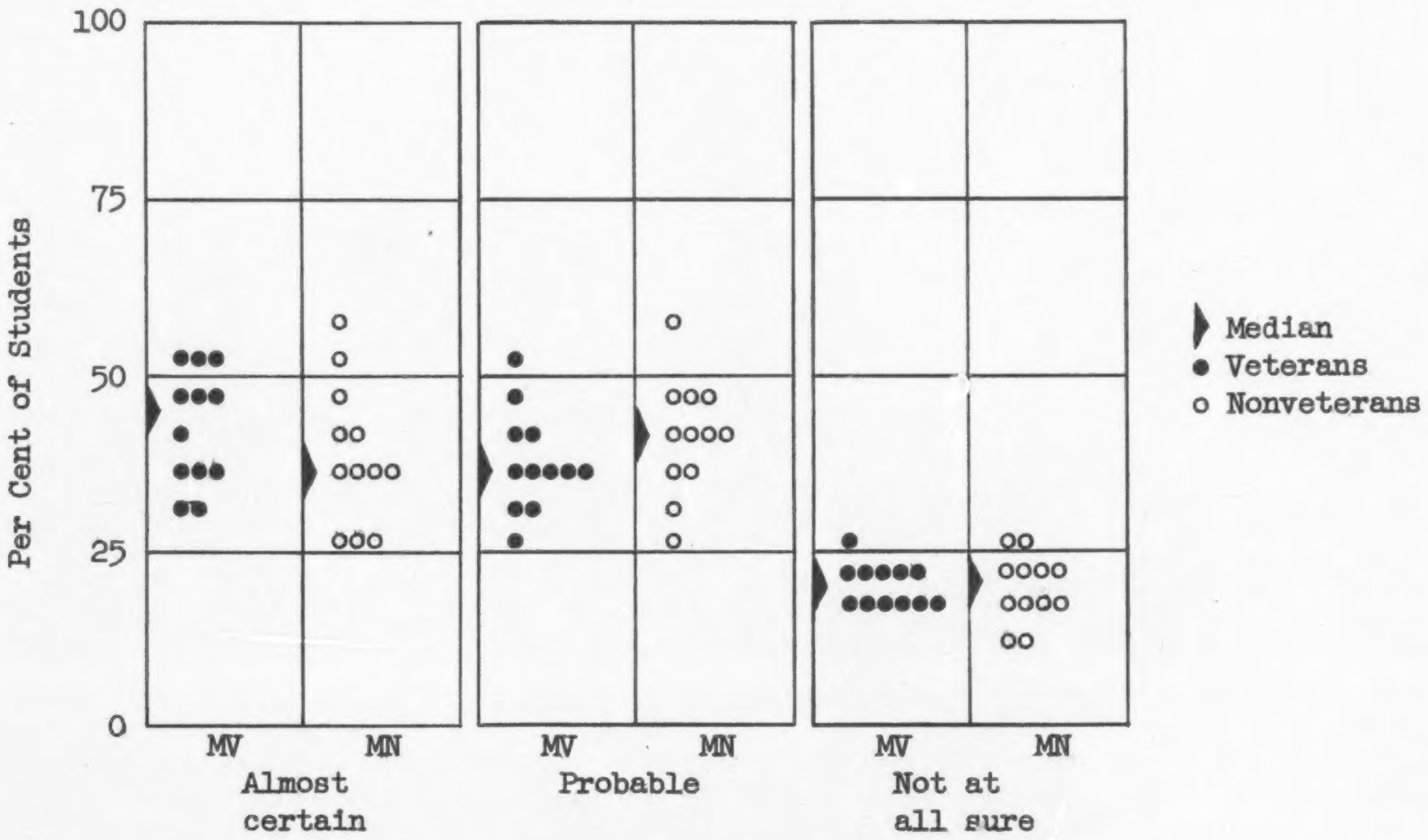
In interpreting these results, the possibility should be considered that the relationship between kind of vocational objective and AAG is influenced by the grades the students have obtained. Students may have modified their vocational plans in a manner which is consistent with the college grades they had already earned in their freshman year.

The item does not help to account for the tendency of veterans to earn higher AAG's. Since nonveterans more often possess the characteristic which is most strongly associated with overachievement (preferring a job requiring graduate study) and veterans more often possess the characteristic associated with underachievement (jobs least likely to require college training), the item would on the contrary lead one to expect the nonveterans to excel in grades relative to ability.

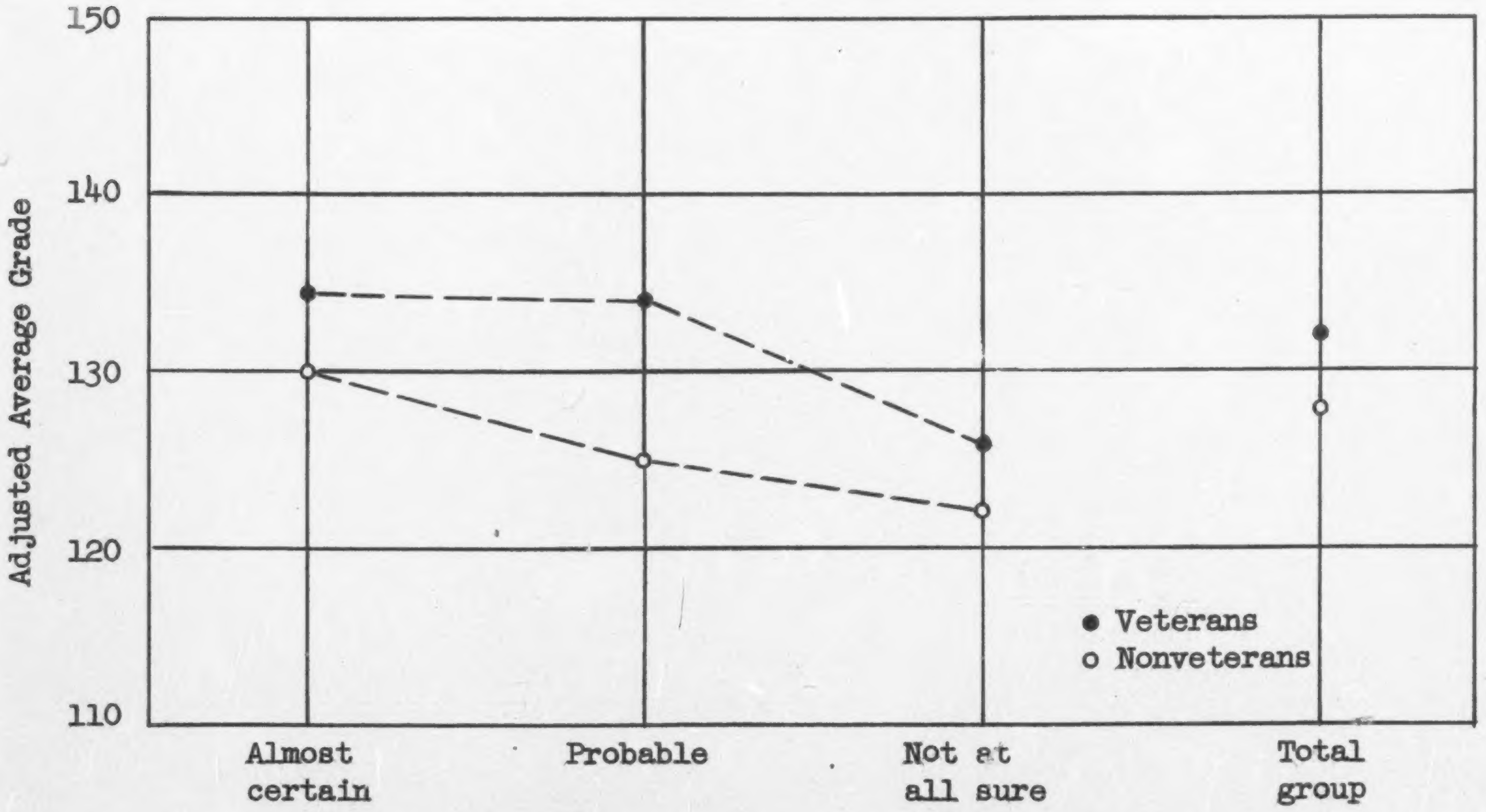
It would probably be more realistic to conclude that vocational choice poses different problems for veterans than for nonveterans; the sacrifices involved in extended professional training would be substantially greater for veterans, who are starting college at the age when students usually are completing college, than for nonveterans.

Certainty of Vocational Choice. Item 12 asks, "How sure do you feel that you will actually do this general kind of work?" The categories used in the analysis are the same as the choices as printed in the questionnaire: (A) I am almost certain; (B) I probably will, but may do something else, and (C) I am not at all sure what I shall do. The results for this item are shown graphically in Figure 33.

> More male veterans than nonveterans were "almost certain" of their vocational objectives, although an almost equal proportion of each were "not at all sure" what they would do. Women students tended to be less



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 33. CERTAINTY OF VOCATIONAL CHOICE: ITEM 12

7

> sure than men. Students who were fairly sure of the kind of work they would do earned higher AAG's than those who were uncertain about their objectives.

Inspection of the arrowheads indicating medians in Figure 33 shows that the veterans are "almost certain" slightly more frequently than are the nonveterans, and nonveterans fall more frequently in the middle category. About 20 per cent of both veterans and nonveterans are not at all sure of what kind of work they will do. This proportion is higher than the undecided category on the previous item, probably because some of the undecided students wrote in the names of broad occupational fields in response to Item 11.

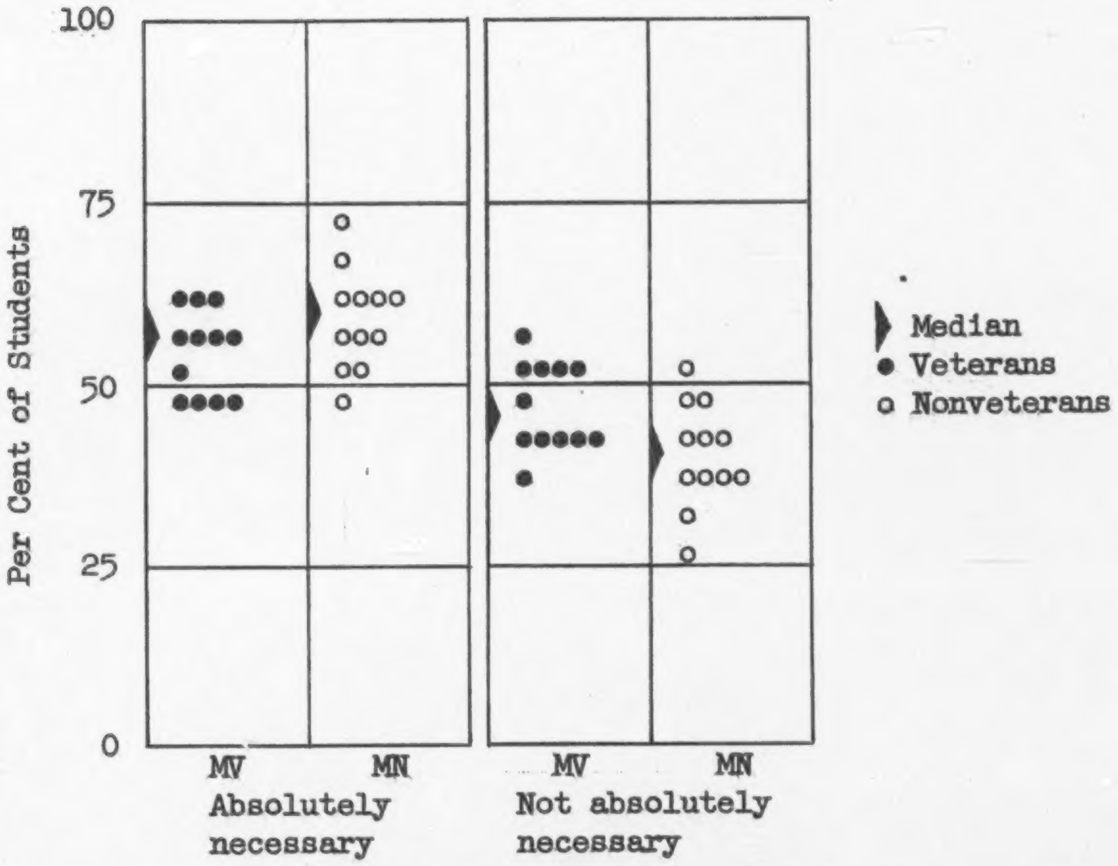
Variability among the college groups is not extreme. It is interesting to discover that the engineering school groups are at or near the bottom with respect to percentage of "almost certain" responses. Women students tended to be less sure of their vocational objectives than the men. The women at Douglas were most extreme in this regard: over half said that they were not at all sure what they would do.

Certainty of vocational aim tends to be associated with higher Adjusted Average Grade; the median AAG for students who are certain is nearly ten points higher than for those who say they are not at all sure. The mean AAG of veterans who are not at all sure is lower than the mean AAG of veterans in other categories in eleven of the twelve basic groups; for nonveterans it is lower in nine of the twelve groups, with a tie in two cases.

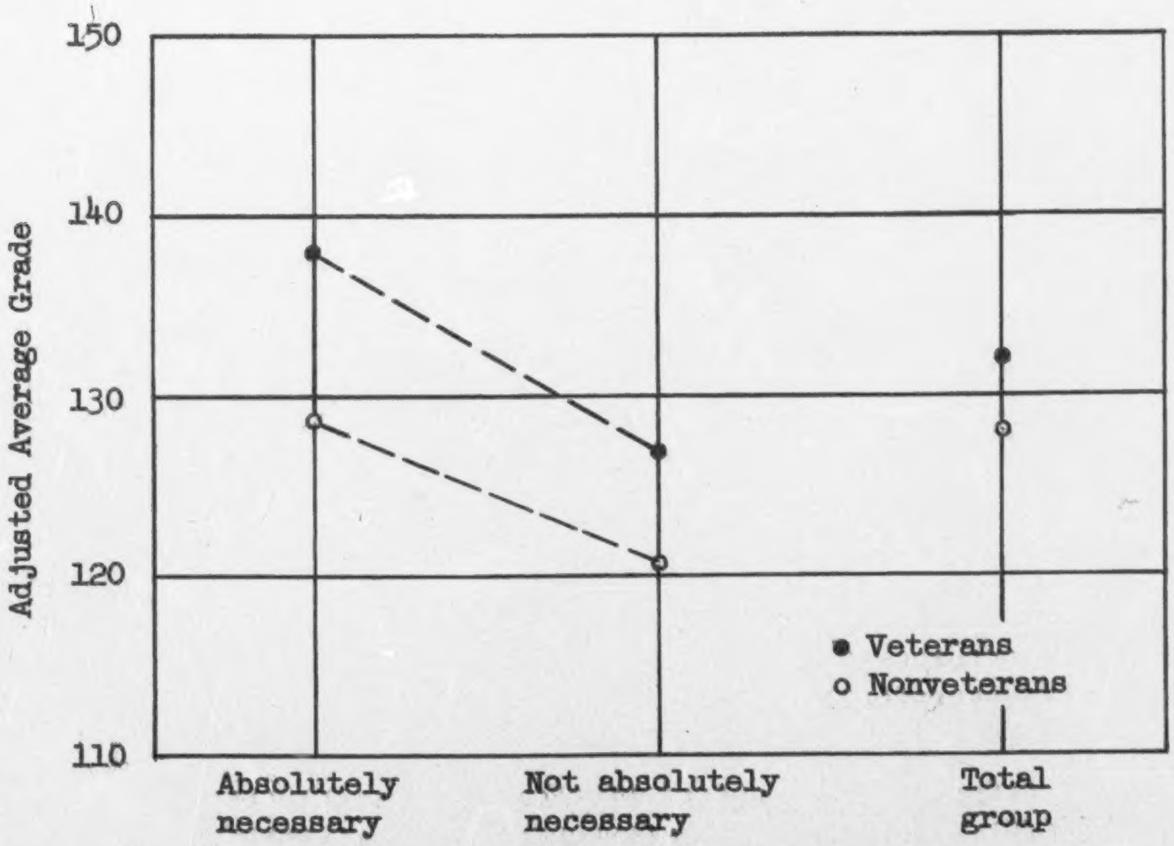
There is no evidence that the superiority of veterans in grades relative to ability would be reduced if veterans and nonveterans were alike with regard to certainty of vocational objective. While veterans are "certain" somewhat more often than nonveterans, it happens that the veterans in the "probable" category earn AAG's which are as high as for those who are certain. The net result is that the sign test results are almost exactly what would be expected by chance.

Importance of College Graduation. The next item in the questionnaire, Item 13, asks, "How important is it for you to graduate from college in order to do the kind of work you are planning to do?" Two categories were used in the analysis of the responses: (A) absolutely necessary, and (B) not absolutely necessary. The students in the first category are those who checked, "I can't do that kind of work unless I have a college degree." The second category includes students who said a college degree was not absolutely necessary or that it wasn't at all necessary. The results are shown in Figure 34.

> The majority of male students considered college graduation absolutely necessary to their future plans, with a slightly larger proportion of nonveterans than veterans expressing this opinion. Women students more often considered a college degree not absolutely necessary to their planned occupation.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 34. IMPORTANCE OF COLLEGE GRADUATION FOR VOCATIONAL OBJECTIVES: ITEM 13

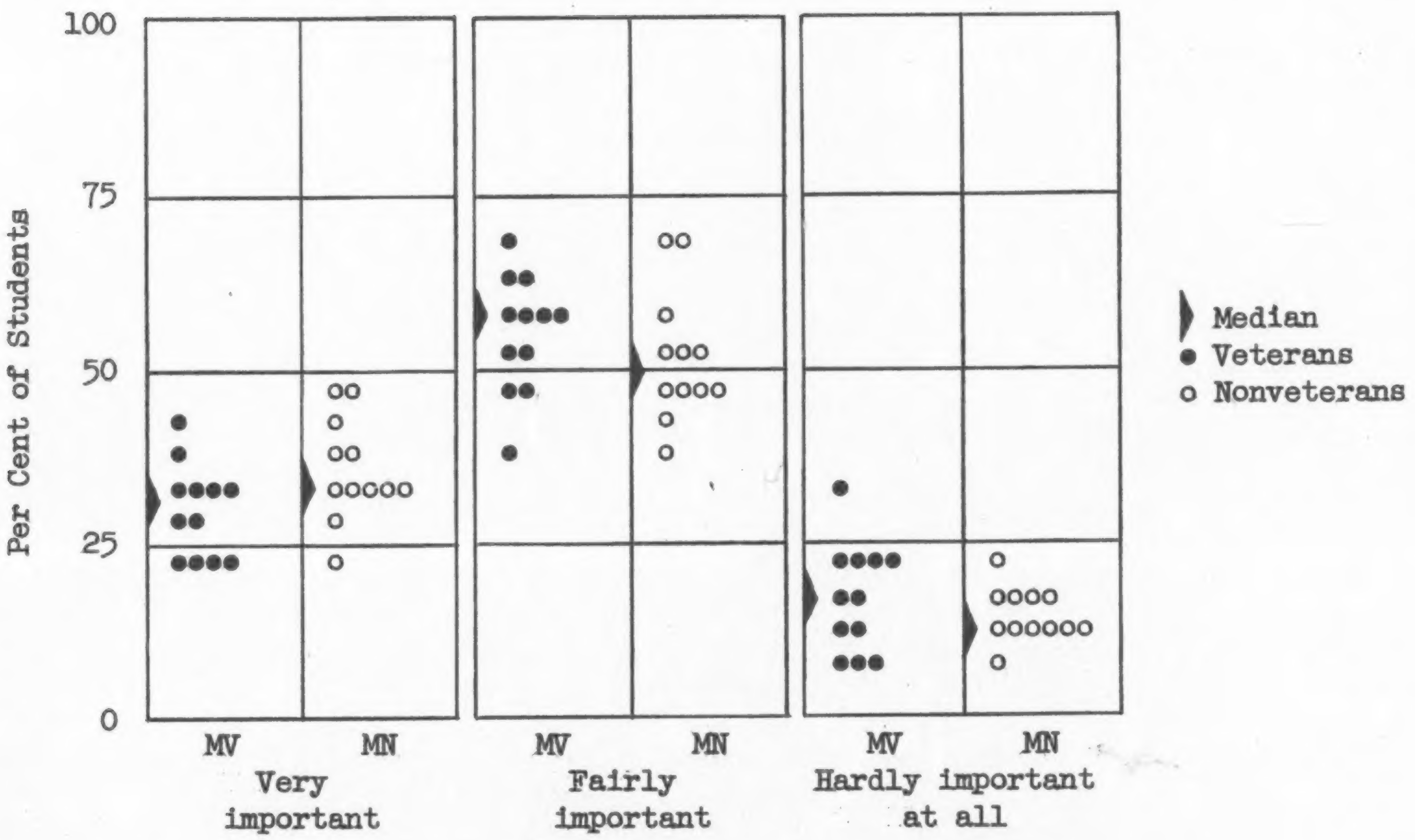
> Students who considered college graduation essential obtained higher AAG's than those who did not. The judged importance of college graduation is significantly related to AAG; but the frequencies of the questionnaire responses were such as to lead to the expectancy that the nonveterans, rather than the veterans, would excel in grades relative to ability.

College graduation was considered absolutely necessary by a majority of the male students. Women students considered graduation essential much less often, although there was one exceptional group: women at Eastern City chose the first category slightly more often even than the men. Nonveterans considered college graduation necessary somewhat more often than did the veteran students. In eight of the nine liberal arts colleges among the basic groups, the nonveterans chose the "necessary" response more often than the veterans; while in engineering schools the veterans and nonveterans were more similar with respect to the importance attached to college graduation.

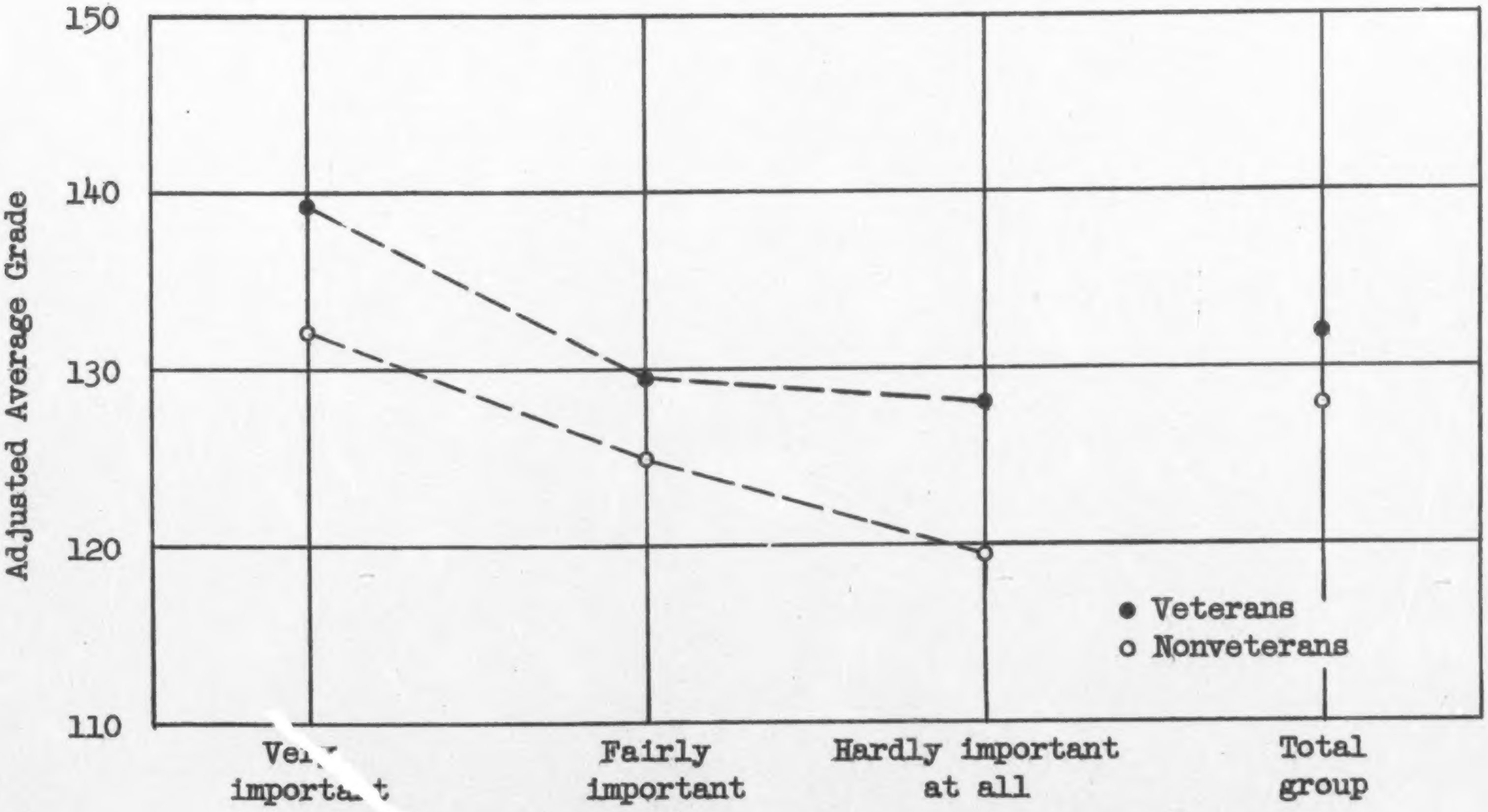
There is a rather marked tendency for students who regard college graduation as essential to be overachievers in comparison to students who do not consider graduation absolutely necessary. The difference in mean AAG between the two category means amounts to about ten points for both veterans and nonveterans, judging from the median groups. In three of the veteran and two of the nonveteran groups, the difference in mean AAG between those who thought graduation was essential and those who did not was significant at the 1% level. In all twelve of the veteran groups and in eleven of the twelve nonveteran groups, those who said graduation was not essential earned a lower mean AAG than students in the other category; such a proportion of differences in one direction would be expected by chance less than once in a hundred times.

On the basis of this item, one would expect the nonveterans rather than the veterans to be superior in Adjusted Average Grade, since nonveterans possess the characteristic associated with overachievement to a greater extent than do the veterans. Although the results of the sign test are consistent in direction with this statement, the results are by no means significant. Here, again, the possibility that this question meant one thing to veterans and another thing to nonveterans must be considered. A nonveteran who considered that graduation was not essential may have been low in academic inclinations; the veteran, being older, may have adopted the same view as a realistic adjustment to the fact that he might be unable to complete his college work.

Importance of College Grades. The next questionnaire item has to do with the importance attached to college grades. The statement of Item 14 is, "How important do you think college grades will be in relation to the kind of opportunities that will be available to you after college?" The three choices were (A) very important, (B) fairly important, and (C) hardly important at all. The results for the twelve basic groups are presented in the usual fashion in Figure 35.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 35. IMPORTANCE OF COLLEGE GRADES FOR VOCATIONAL OPPORTUNITIES: ITEM 14

> Veterans tended to put slightly less stress on grades than did male nonveterans; both groups most frequently felt college grades would be only fairly important in relation to vocational opportunities. Somewhat fewer women students felt grades would be "very important" than the members of either male group. Mean AAG's obtained were quite closely related to the amount of importance the students attached to grades.

As indicated by the medians in the upper part of the figure, half of the male nonveterans and somewhat more of the veterans judged that grades would be only fairly important. About a third of the students felt that grades were very important. Nonveterans believed that grades were very important slightly more frequently than veterans and that grades were hardly important at all somewhat less frequently. The variability among colleges with regard to the frequencies of responses was moderate. Students in the engineering colleges tended to report that they felt grades were "hardly important at all" less frequently than the students in the liberal arts colleges. In general, a somewhat smaller proportion of women students considered grades "very important" in relation to future opportunities than did either male group.

The tendency for students who considered grades very important to earn higher AAG's than other students is rather marked, and the relationship is very similar for the veteran and the nonveteran students. The superiority in mean AAG of the students choosing "very important" is significant at the 1% level in five veteran groups and one nonveteran group. Students in this category were superior to other students in ten veteran and eleven nonveteran groups.

Again we find that the difference between veterans and nonveterans would not be reduced if they were equated with respect to questionnaire response. Veterans and nonveterans are too similar with regard to the importance attached to college grades to support the hypothesis that the veteran-nonveteran difference in AAG can be accounted for on the basis of this variable.

Summary. Male students, both veteran and nonveteran, most commonly reported that they were planning to get a job for which college graduation or graduate study is essential. Fewer than 15 per cent gave responses which indicated that no decision had been made as to the kind of work they planned to do. Women students planned to do work requiring graduate study far less often than men, and were more often undecided. A somewhat greater proportion of veterans were certain of their vocational objectives than was true of nonveterans. College graduation was considered necessary by a majority of the male students; the male nonveterans considered graduation essential somewhat more often than the veterans. Women much less frequently thought that graduation was essential. Male nonveterans tended to ascribe slightly greater importance to college grades than did the male veterans or the women.

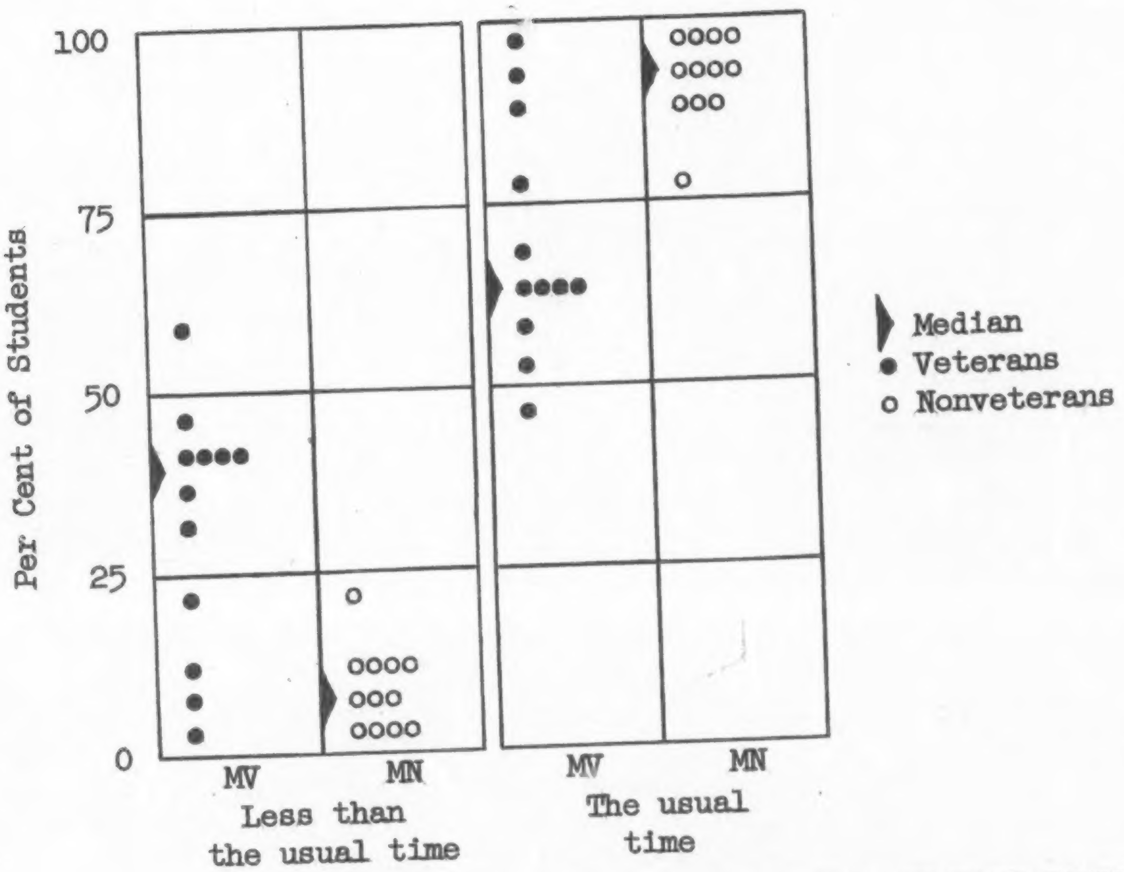
High Adjusted Average Grades tended to be earned by students who planned to enter a profession requiring college or graduate training, who were certain of their vocational objectives, who considered college graduation essential for their work, and who believed that college grades were very important in relation to vocational opportunities. The tendency for veterans to excel nonveterans in grades relative to ability cannot be accounted for on the basis of any of the items concerned with vocational plans. In fact, on two of the items (nature of vocational aim and importance of college graduation) nonveterans more often than the veterans possessed the characteristic which is associated with higher AAG. On the basis of these items, one would expect the nonveterans rather than the veterans to excel in grades relative to ability.

Acceleration of College Progress

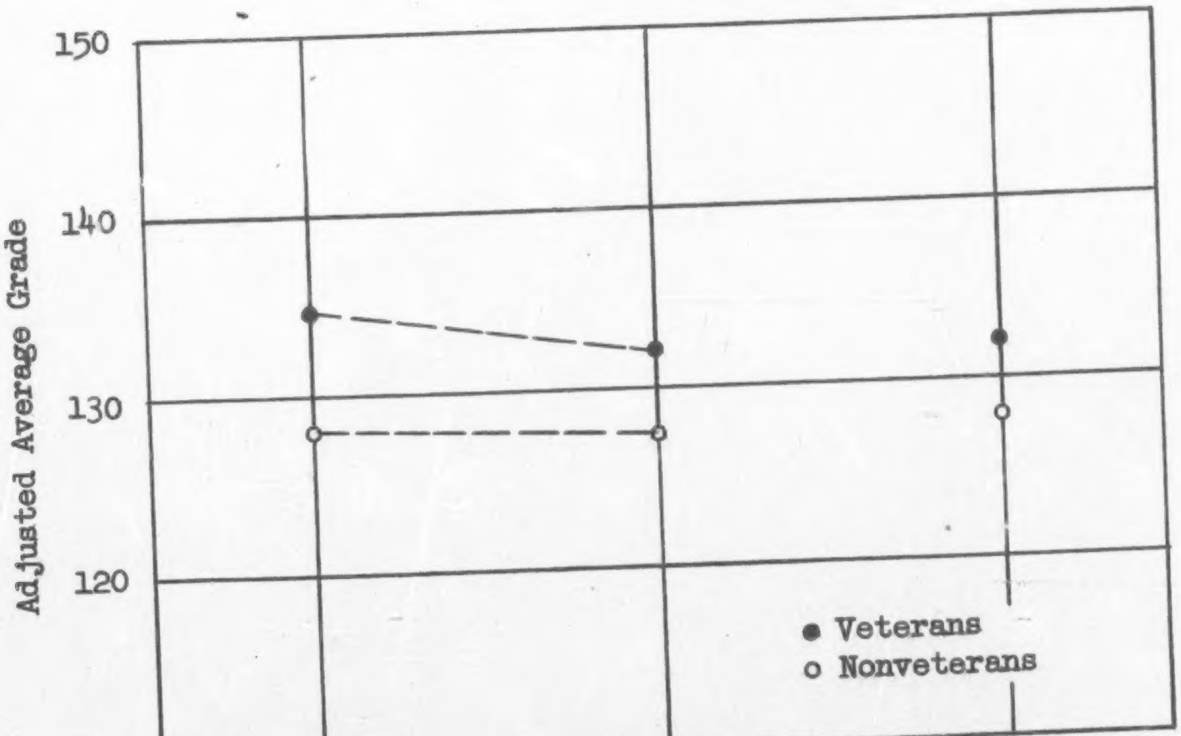
An indication of the feeling of urgency with regard to completing one's education and getting on with his career may be given by the response to Questionnaire Item 21. This item asks, "Are you planning to take your degree in less than the usual amount of time spent (either by attending summer sessions or by taking a heavier than normal load of courses)?" The response categories used in the analysis were (A) yes, and (B) no. (A few students who planned to take more than the normal amount of time and who did not plan to graduate were also included in Category B.) The results of the analysis are shown in Figure 36.

> Veterans apparently do experience a greater feeling of urgency to get about the business of earning a living, as is evidenced by the much larger proportion planning to finish in less than the usual time. Those veterans who plan to accelerate tend slightly to earn higher grades relative to ability than veterans who do not, but among nonveterans intention of acceleration is not related to AAG.

It is apparent that a much larger proportion of veteran students planned to accelerate their progress through college than was true of the nonveteran students. In the median groups, about 40 per cent of the veterans and less than 10 per cent of the nonveterans planned to take their degrees in less than the usual amount of time. Even fewer of the women students planned an accelerated program. The variability among colleges was not great for the responses of nonveterans; but among veterans there was considerable variability. At Miller more than half of the veterans planned to accelerate, and the proportion was even greater at Taylor, Eastern City, and Central State (for the group which entered in 1945). On the other hand, at Stewart and at the Midwest City College of Engineering fewer than 10 per cent of the veterans planned to graduate in less than the normal time. These variations are probably the result of different regulations in effect in the



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 36. LENGTH OF TIME PLANNED FOR EARNING DEGREE: ITEM 21

various colleges. Probably the median percentage of veterans planning to accelerate would be even higher if university regulations at all institutions freely permitted acceleration.

For nonveterans there is no consistent tendency for plan to complete college in less than the normal time to be associated with higher grades relative to ability. The mean AAG (for the median groups) is almost exactly the same for both of the item categories. Among veterans, however, there is a slight but generally nonsignificant tendency for students who wish to accelerate to earn higher AAG's than students who do not wish to accelerate. Although veterans differ considerably from nonveterans with respect to the intention to complete college quickly, the relationship of the item to AAG is too weak to permit us to accept the hypothesis that the veteran superiority is due to any characteristic assessed by this questionnaire item.

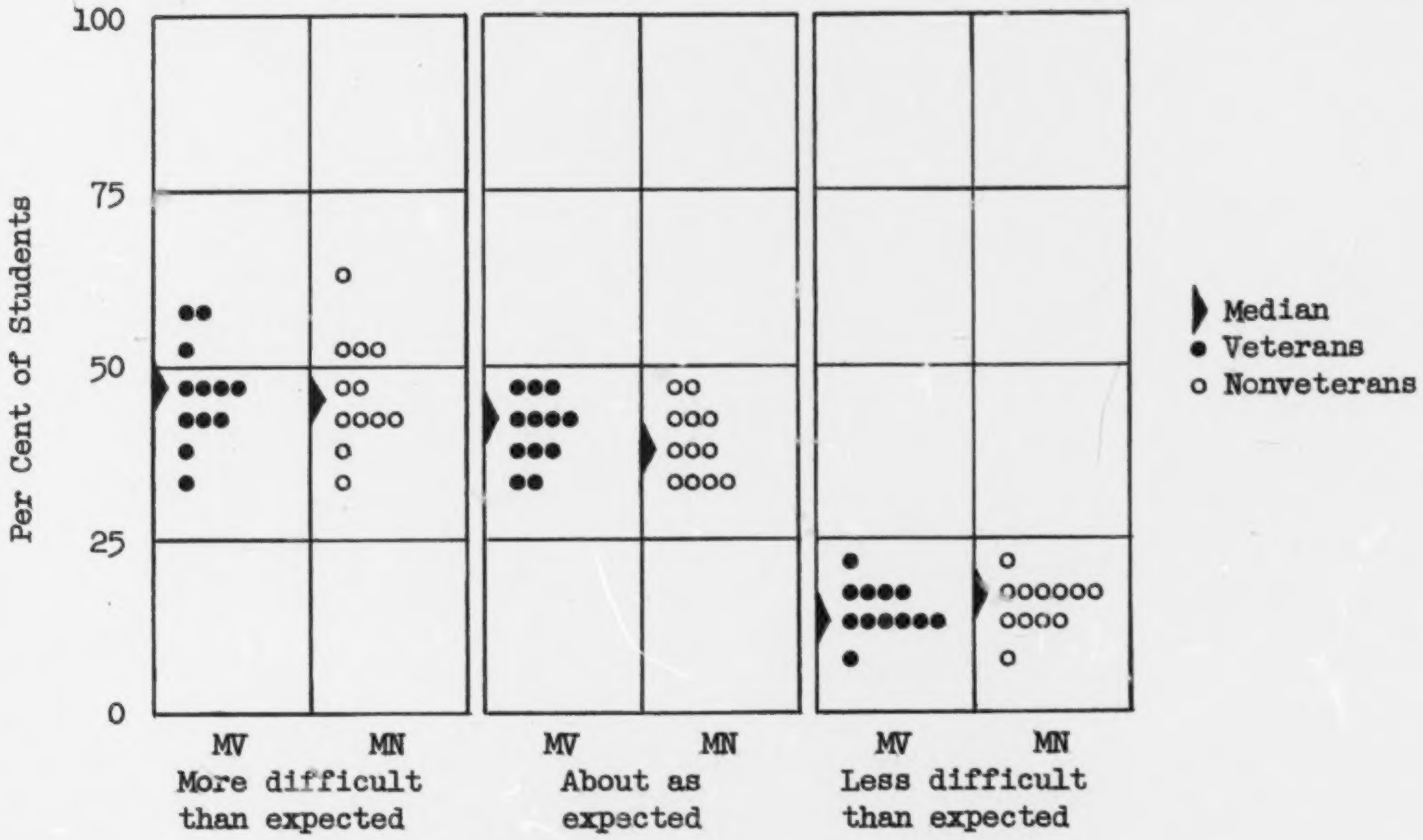
Adjustment to the Demands of College Study

It is not unreasonable to suppose that a measure of motivation for academic work in college might be obtained by finding out something about the student's work habits, how difficult he finds it to keep up in his work and to do his assignments on time. Three items were included in the questionnaire which it was hoped would at least reveal any gross differences which might exist between veterans and nonveterans with regard to this aspect of his adjustment to the demands of college.

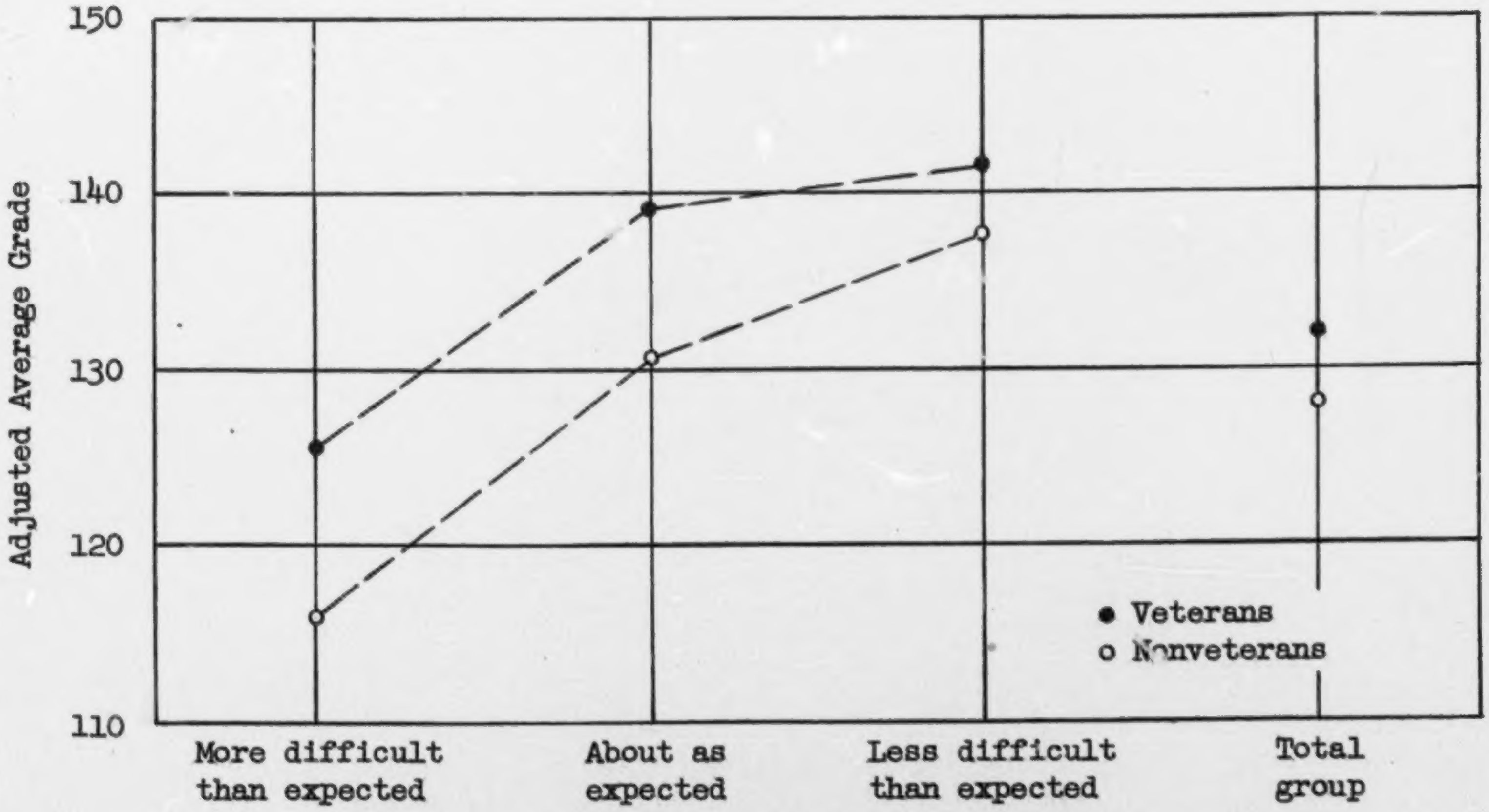
The Difficulty of College Work. Item 20 asks, "Have you found it more or less difficult to keep up in your work this term than you had expected it to be?" Three response categories were used: (A) more difficult, (B) about as expected, and (C) less difficult. These categories were formed by combining certain of the five choices as given in the questionnaire. The results for the twelve basic groups are shown in Figure 37.

> Male veterans and nonveterans are quite similar in their judgments of the difficulty of keeping up in college work. Almost half of both groups found it more difficult than they had expected; relatively few thought it less difficult. The opinions of women students agree closely to those of men in this regard. The relationship of Adjusted Average Grades to judged difficulty of college work is highly significant, those feeling the work more difficult than expected obtaining low AAG's, those feeling it less difficult obtaining high AAG's. This, of course, may result from rationalization of known achievement.

Almost half of the students reported that they found it more difficult to keep up in their college work than they had expected, while only about 15 per cent thought that it was less difficult. The differences between



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 37. DIFFICULTY OF COLLEGE WORK: ITEM 20

veterans and nonveterans in judgments about the difficulty of college work are very slight, and women students appear to be quite similar to men in this regard. Insofar as judgments about the experienced difficulty of college work reflect interest or motivation, there is no indication that veterans are more strongly motivated than the nonveterans.

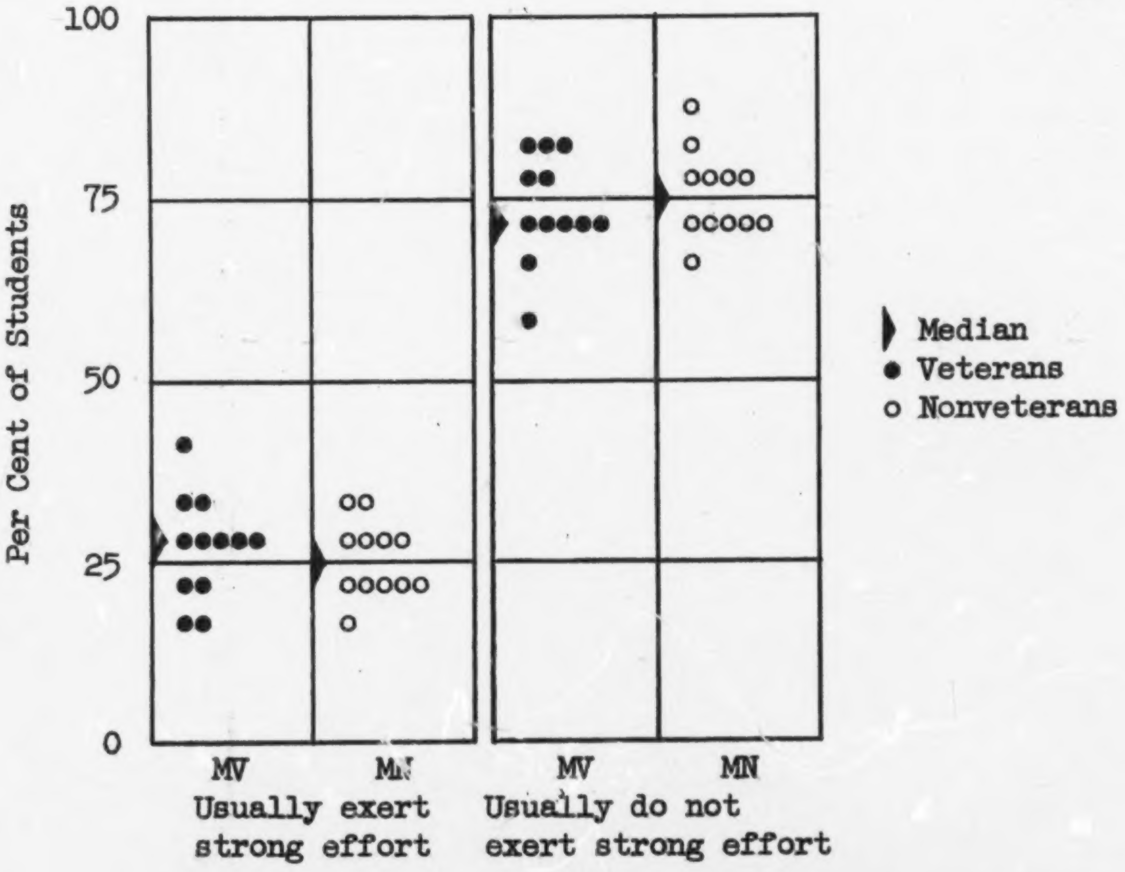
The judgments about the difficulty of college work are quite closely related to Adjusted Average Grades. Students who reported that their work was less difficult than they had expected earned AAG's which on the average were nearly 20 points higher than the AAG's of students who felt that the work was more difficult than they had expected. The relationship is highly significant. In six of the twelve veteran groups and five of the twelve nonveteran groups, students who said "more difficult" earned significantly lower mean AAG's (at the 1% level) than students choosing other responses. In all twelve groups, both for veterans and nonveterans, the mean AAG of the students reporting "more difficult" was lower than the mean AAG for students giving other responses. Such consistency in the direction of the differences would be expected by chance less than once in a hundred times.

In considering how this finding should be interpreted, we again must remember that the questionnaires were filled out after the students had considerable knowledge of their academic success as measured by grades, and it is quite possible that the relationship between item and AAG was enhanced by a tendency to rationalize their grades on the basis of the difficulty of the work.

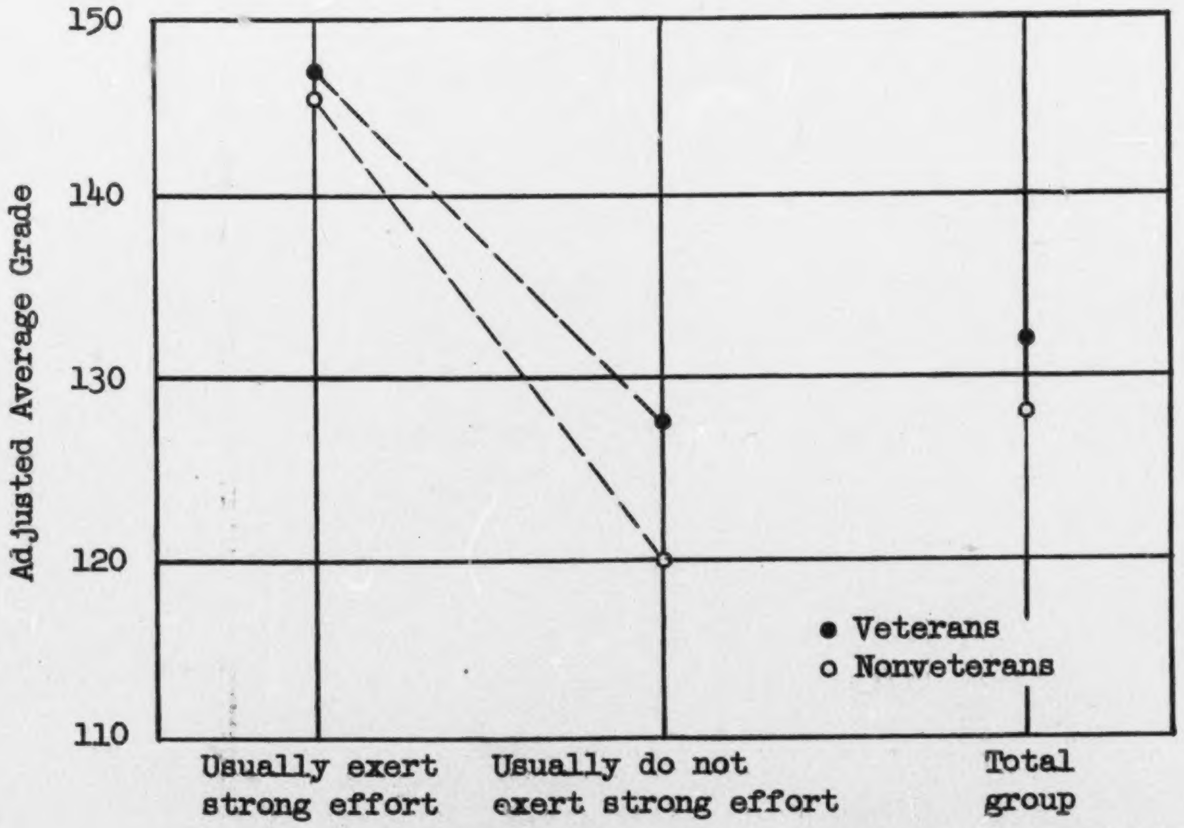
At any rate, it is clear that judgments about the difficulty of college work, whether they are interpreted as rationalizations or as evidence of strength of interest and motivation, do not provide an explanation of the higher grades relative to ability which are earned by veteran students. Although the item is significantly related to AAG, the veterans and nonveterans are too similar with respect to the proportion choosing each category to permit the interpretation that the characteristic measured by the item accounts for the veteran-nonveteran difference in AAG.

Effort. Item 28 attacks the problem of assessing motivation in a very direct manner; the question is, "In general, would you say you usually exert strong effort to do good work in your courses, or do you tend to do just enough to get by?" Only two categories were employed in the analysis: (A) usually exert strong effort, and (B) usually do not exert strong effort. This second category included students who checked either "I work fairly hard in some courses, not so hard in others" or "I usually tend to do just enough work to get by with fair grades." The results are shown in Figure 38.

There is close agreement among male veterans, male nonveterans and female students in the amount of effort claimed; about one fourth of each group said they usually exerted strong effort. The Adjusted Average Grades are significantly higher for



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 38. EVALUATION OF EFFORT EXERTED IN DOING COLLEGE WORK: ITEM 28

> students who claimed they exerted strong effort than for those who did not. As in the previous item concerning difficulty of work load, these may be after-the-fact rationalizations.

Again we find that veterans and nonveterans are strikingly similar with regard to proportions choosing the two categories. About one fourth of the students claimed that they usually exerted strong effort. Women students were very similar to the men in this respect. The twelve basic groups tended to be rather similar to one another; the highest percentage of students claiming strong effort was about 40, at Midwest City, and the lowest (under twenty per cent) at Evans, Central State and Littletown State. Engineering schools do not appear to be particularly high in the proportion of students who say they usually work hard.

The relationship of amount of effort to Adjusted Average Grade is marked; it is similar to the preceding item with regard to significance tests. Again the possibility that rationalization is involved must not be overlooked, however; students with low grades may have tended to feel that they could have earned higher grades if they had really tried.

Because of the marked similarity between veterans and nonveterans in proportion giving each response, the superiority of the veterans in AAG cannot be attributed to amount of effort as assessed by this questionnaire item.

Keeping Up-to-Date. Another questionnaire item designed to get at differences in motivation is Item 29, which asks, "In general, how well do you keep up-to-date in your study assignments?" The three categories used in the analysis are (A) keep ahead, (B) up-to-date, and (C) behind. This item represents another rather direct approach to assessing motivation, but puts the judgment on a slightly more objective basis than the preceding item. Since the analysis of this item gives results which are in general very similar to those of the two preceding items, no figure is presented; the detailed results are shown in Appendix Table 29.

> Again both male veterans and nonveterans showed the same pattern of response; about three fourths said they usually kept up-to-date in their study assignments. An even higher proportion of women students fell into this category. The relatively small proportion of students who generally kept ahead in their studies earned significantly higher AAG's than those who fell behind.

Approximately three fourths of the male students in the median group gave the second response--they claimed that they usually got their assignments done on time. About 15 per cent were so eager that they completed assignments before they were due, and the remaining 10 per cent were usually late getting assignments done, according to the questionnaire responses. The similarity between veterans and nonveterans with regard to the proportion in the three categories is striking, although there is a slightly smaller proportion of the veterans who would admit being laggards. Somewhat more than three fourths of the women students reported that they usually got their assignments done on time. Variations among the colleges are again not extreme, and there is no tendency for engineering students to be characterized by greater or less promptness in doing assignments than liberal arts students.

The relation of "keeping up-to-date" to Adjusted Average Grade is again highly significant. Students who claim to complete assignments before they are due earn AAG's which are on the average about 30 points higher than those earned by students who are usually behind in their work.

Although the item is significantly related to AAG, the differences between veterans and nonveterans in proportions choosing the various response categories are too small to permit us to conclude that differences in keeping up-to-date account for the superiority of veteran students in grades relative to ability.

Summary. The three items discussed in this section, which presumably are related to such factors as interest and motivation, show that veteran and nonveteran male students are strikingly similar. Almost half of the students felt that it was more difficult to keep up in their work than they had expected. Only about a quarter of the students claimed that they usually exerted "strong effort" in their work. About three fourths said that they usually got their assignments done on time, the remainder being either ahead of time or behind time. Women students do not differ markedly from the men, although a somewhat larger proportion of them were in the middle category with respect to keeping up-to-date on assignments.

All three items--difficulty in keeping up in college work, amount of effort exerted, and keeping up-to-date in study assignments--are significantly related to Adjusted Average Grade. The relationship may, however, be enhanced by the tendency of students to rationalize, since they knew their first-term grades, at least, at the time they filled out the questionnaire. None of the items helps to account for the veteran superiority in AAG, since veterans and nonveterans could scarcely be more similar with regard to the proportions choosing the various response categories.

Conclusions

There seems to be some difference between veterans and nonveterans with regard to motives for attending college. The reason for going to college most often given by nonveterans was to get necessary training for entering a profession; veterans most often said they wished to prepare themselves for a better-paying job. Possibly one reason for the difference is that the veteran students, being older, were not willing to spend additional years in professional graduate schools. Women students differed considerably from the men; they much more often said that they wanted to increase general knowledge, or they gave other reasons which are related to social motives.

The analysis of a number of items having to do with vocational plans showed only slight differences between veterans and nonveterans. Students in both groups were typically planning to get a job for which college graduation or graduate work is essential, and fewer than 15 per cent indicated that they had made no decision as to the kind of work they would do. Veterans tended to express certainty as to their vocational choice somewhat more often than nonveterans. Nonveterans more often considered college graduation essential for their vocation and tended to ascribe greater importance to college grades than the veterans. Fewer women students than men were planning to go into a profession requiring graduate work; women were more likely than men to be undecided about a vocation. They tended to ascribe less importance to college graduation than did the male students. The sex differences with regard to items pertaining to vocational plans do not seem surprising in the light of the different roles ordinarily played by women in our society.

The greater feeling of urgency on the part of the veteran student is shown by the responses to a question about acceleration of the college program. A much larger proportion of veterans than of nonveterans were planning to graduate in less than the usual amount of time.

Veteran and nonveteran students were strikingly similar in their responses to a series of items designed to investigate how the students are adjusting to the demands of college life. Almost half of the students felt that it was more difficult to keep up in their college work than they had expected. Only about a quarter claimed that they usually exerted "strong effort" in their work, although about three fourths said that they usually got their work done on time. Women students did not differ markedly from men in their replies to these questions.

Those students tended to earn higher grades in relation to ability who went to college for necessary professional training or general knowledge, planned to enter a profession requiring graduate training, were certain of their vocational choice, considered college graduation essential for their future work, and believed that college grades were very important in relation to vocational opportunities. Many of these trends seem to indicate a realistic view of the situation on the part of the students, in view of the importance of the undergraduate record for admission to a graduate or professional school. Planning to accelerate progress through college is slightly associated with higher Adjusted Average Grade for veterans but not for nonveterans. The three items dealing with adjustment to the demands of college--the experience of having difficulty in keeping up in college work, amount of effort, and keeping up to date on assignments--are all significantly related to Adjusted Average Grade; but it appears likely that the relationship may be enhanced by a tendency on the part of the students to rationalize ("Yes, my grades are low, but I didn't really try very hard").

The superiority of veterans cannot be explained on the basis of the aspects of academic motivation dealt with in this chapter, even though these items were rather clearly related to AAG. The veterans and nonveterans were very similar with respect to the proportions choosing the various response categories to many of the items. On two of the items (those dealing with the kind of vocational objective and the importance of college graduation) the nonveterans possessed the characteristic associated with high AAG somewhat more often than the veterans. None of the items showed a markedly higher proportion of veterans choosing the responses associated with high AAG or of nonveterans choosing the responses associated with low AAG's.

RB-50-16

RESEARCH BULLETIN

ADJUSTMENT TO COLLEGE

A STUDY OF 10,000 VETERAN AND NON-VETERAN STUDENTS IN 16 AMERICAN COLLEGES

Chapter VII. The Worries of College Students

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and
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Educational Testing Service

April 20, 1950

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Chapter VII

THE WORRIES OF COLLEGE STUDENTS

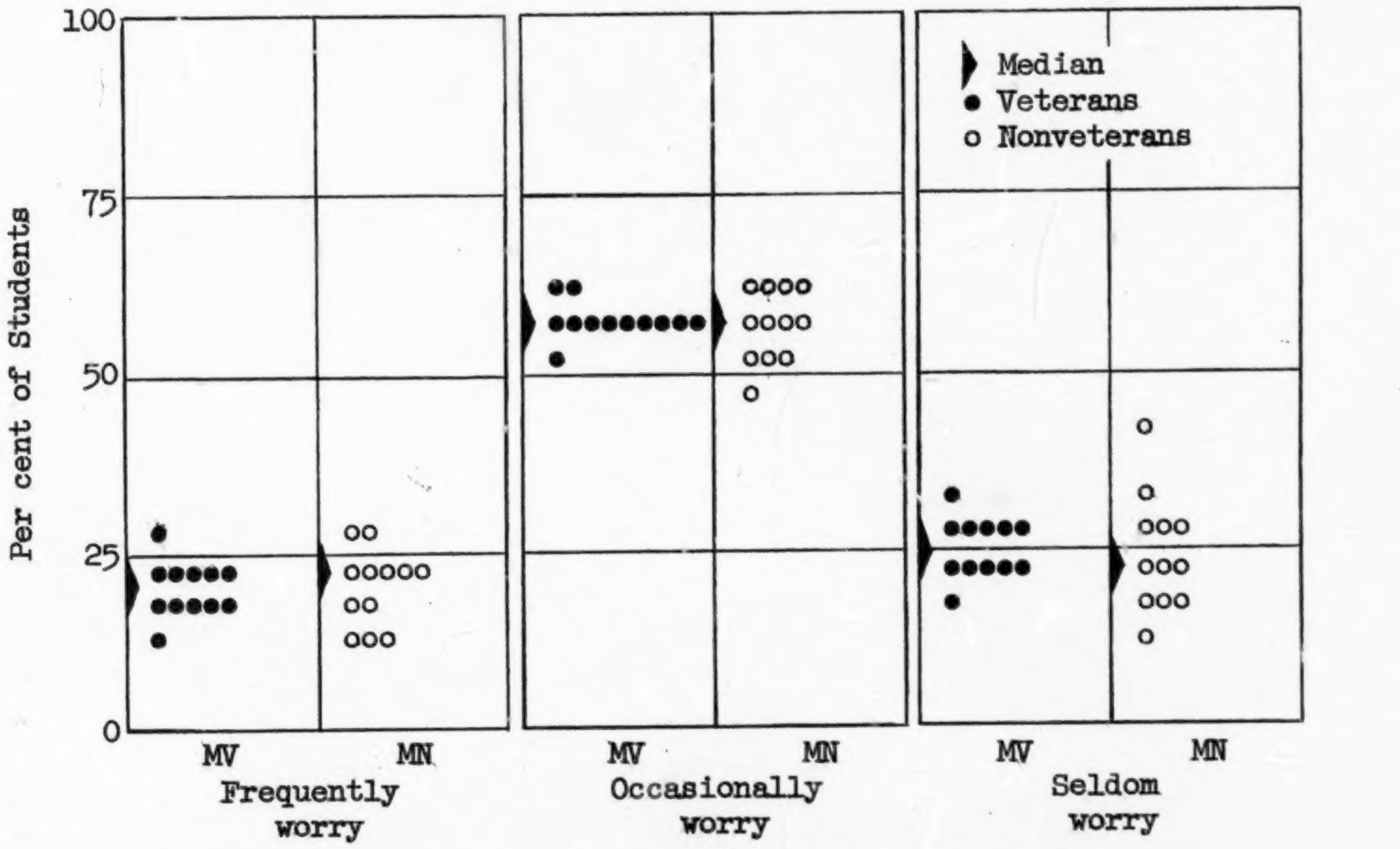
Another hypothesis which should be tested is that the tendency for veteran students to achieve higher grades in relation to ability than nonveteran students is due to differences in such characteristics as emotional stability, anxiety, or feelings of insecurity. When the veterans began returning to college, concern was expressed by some college administrators with regard to the psychological adjustment of the veteran student to college life. Although such concern was later felt to be unjustified, there might still be a difference between veterans and nonveterans in general quality of adjustment. While it is usually assumed that well-adjusted students earn better grades than poorly-adjusted students, such a relationship does not necessarily exist for all kinds or sources of worry. It therefore seemed worth-while to find out, so far as is possible by means of a questionnaire, how veterans and nonveterans compare in their tendency to worry about various types of problems, to study the relationship between worry and Adjusted Average Grade, and to find out if the tendency for veterans to excel nonveterans in Adjusted Average Grade is due to the more frequent possession by veterans of worry-characteristics which are associated with higher AAG.

Sixteen questionnaire items deal with worries. Item 39 is a general question, "Do you sometimes feel worried and anxious or upset?" which was intended to reveal gross differences in neurotic tendencies. The next item, Item 40, is really thirteen related items, each of which is intended to show the extent to which students are worried or anxious about some particular problem area. There is also one open-end item, inquiring about sources of worry not mentioned in the questionnaire. The last of the items discussed in this chapter requires the student to judge to what extent any of his problems has interfered with college work.

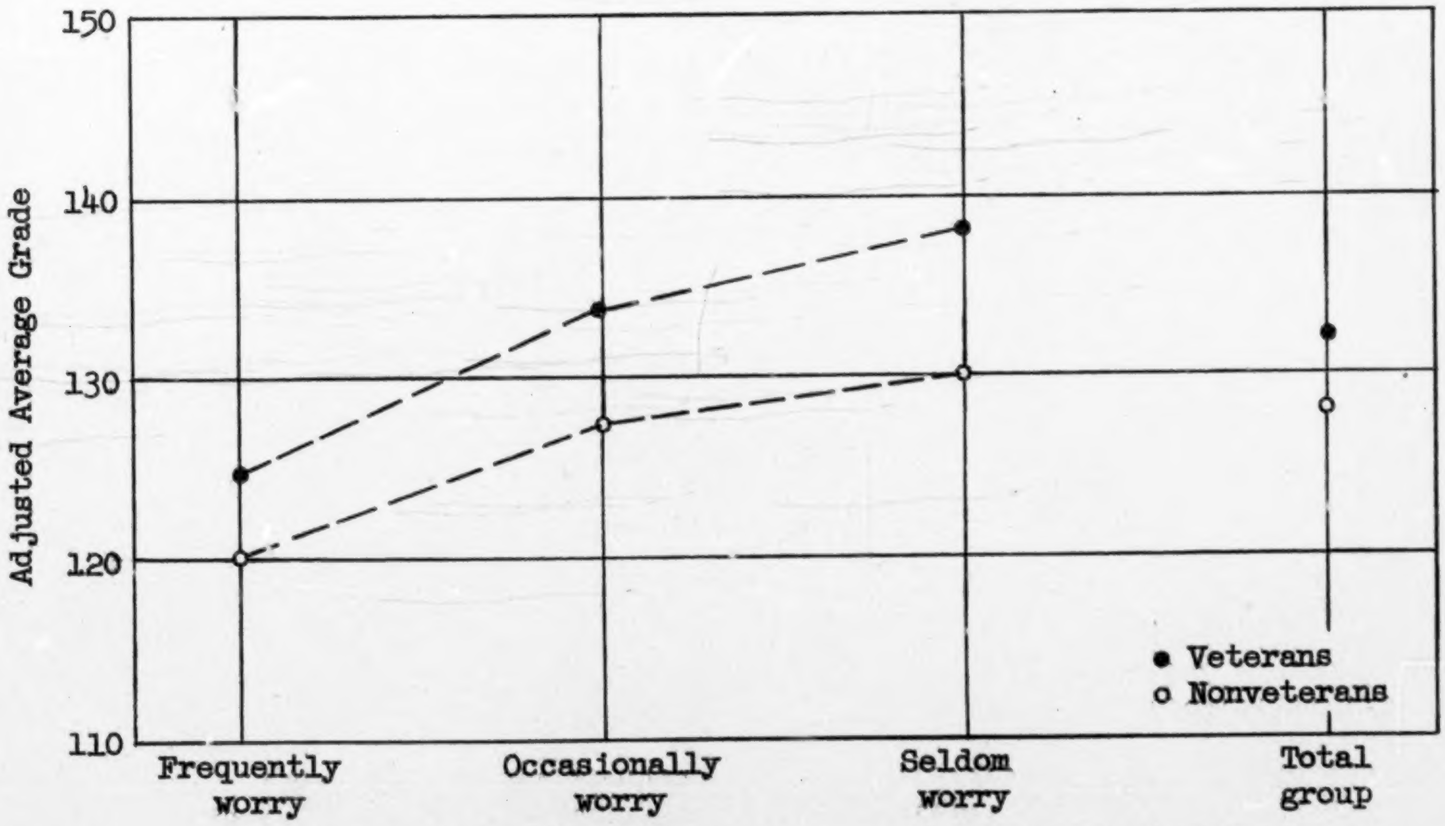
The Frequency of Worry

The question (Item 39) was "Do you sometimes feel worried and anxious or upset?" and the answers were (A) yes, frequently, (B) occasionally, and (C) seldom or never. Figure 39 shows the distribution of the response frequencies for the twelve basic groups and the relation of the item to Adjusted Average Grade.

> The analysis of this very general question about feelings of worry and anxiety shows that veterans and nonveterans were essentially alike in their answers. Women were more likely to report that they worried frequently than were men students. There is a tendency for greater amount of worry to be associated with lower Adjusted Average Grade;



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 39. TENDENCY TO WORRY: ITEM 39

> this tendency is significant for veteran students. The superiority of veterans in AAG is, however, not due to a difference between veterans and nonveterans in amount of worry.

Most students reported that they felt worried and anxious occasionally; in the median group almost 60 per cent of the students, both veteran and nonveteran, fall into this category. About 20 per cent said they worried frequently, and about 25 per cent seldom or never; there is a very slight tendency, as shown by the arrowheads in Figure 39 which indicate median values, for the veterans to worry less than the nonveterans. Women worry more than men, according to their responses to this questionnaire item; at eight of the nine colleges where women's questionnaire responses were tabulated, the women chose the "yes, frequently" response more often than male nonveterans. Finding eight out of nine differences in one direction would be expected by chance less than five times in a hundred.

The lower part of the figure shows that there is a tendency for those students who worry most to earn the lowest grades relative to ability. The difference between the median values of the mean AAG for the "worriers" and those who worry least is about 10. The relationship appears to be slightly greater for veterans than for nonveterans. The mean AAG for the "frequent" worriers is lower than for other students in eleven of the twelve basic groups, when veterans only are considered; this proportion of the differences would occur by chance less than once in a hundred times. At Adams the veterans who checked "yes, frequently" are significantly lower (at the 1% level) than other veterans, and those who checked "seldom or never" are significantly higher. At Stewart, also, the veterans in the first category are significantly low.

Tendency to feel worried and anxious, as measured by this item, cannot account for the superiority of veteran students, since veterans and nonveterans are very similar with respect to the proportions choosing each category of this questionnaire item.

What Students Worry About

The item previously discussed deals with worry and anxiety in a very general way. In the various parts of Item 40 the students were asked to report on tendencies to worry about specific problem areas, in order to find out what are the major problem areas and to find out if the relation of AAG to worry depends at all upon the kind of worry. The item is as follows: "Below are listed some sources of worry and anxiety which seem to be bothering a good many students at the present time. For each problem check the appropriate category to show how much you have been bothered by the problem during this term." The three categories provided were bothered very much, bothered some, and little or not at all. The results of the analysis of Items 40(a) to 40(m) are presented below. The order in which these sub-items are discussed is the order of their importance, for male nonveterans, as sources of worry. (The ranking is based on the median of the percentages for the twelve basic groups.)

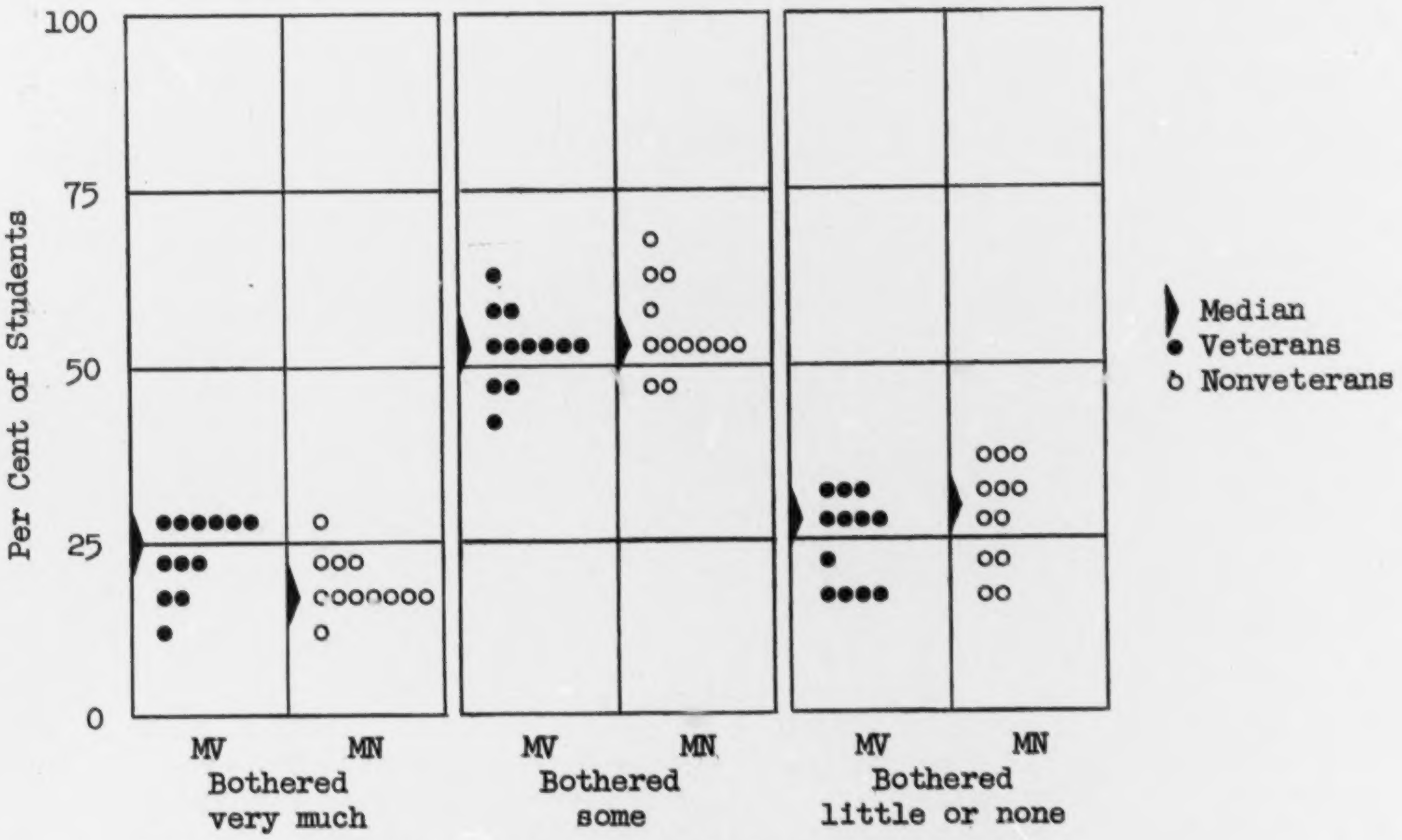
Concentration. The source of worry mentioned in Item 40(g) is "being unable to concentrate." The results of the analysis are shown in Figure 40.

> Veterans were bothered to a greater extent by inability to concentrate than were nonveteran students, according to these questionnaire findings. Women were also more concerned about concentration than nonveterans. Tendency to worry about concentration bears a marked relationship to Adjusted Average Grade: students who worried least earned the highest Adjusted Average Grades. This item also showed a consistent tendency for nonveterans to give responses associated with higher Adjusted Average Grade more often than veterans did.

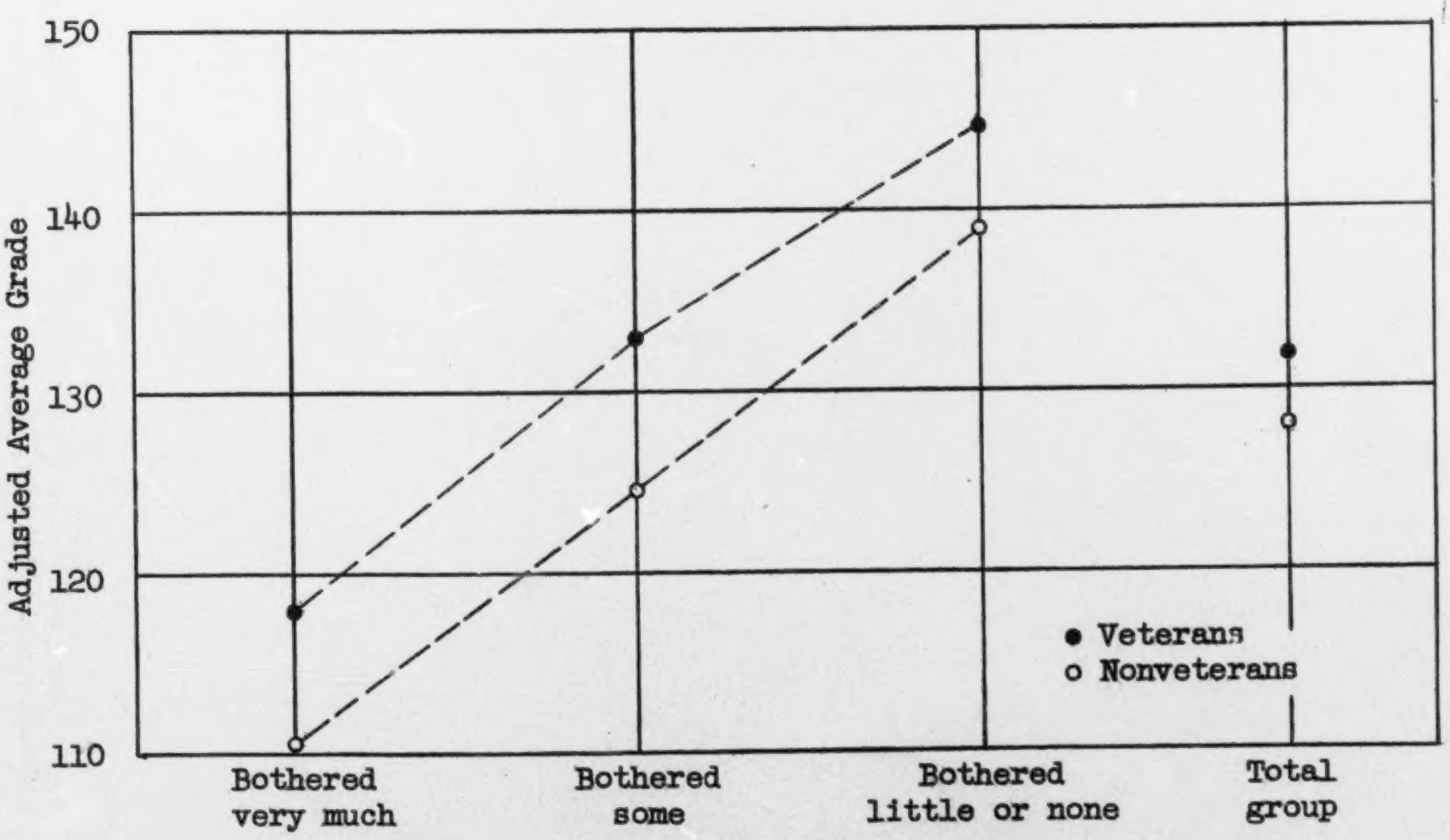
The general pattern of results for this item is rather similar, so far as percentages are concerned, to that for Item 39, the general item on worry and anxiety. About 55 per cent of the students, veterans and nonveterans alike, fall in the middle "bothered some" category, as shown by the arrowheads which indicate the median values. Veterans, however, tend to be "bothered very much" somewhat more often and "little or not at all" slightly less often than the nonveterans. In eleven of the twelve basic groups a larger proportion of veterans than nonveterans said they were bothered very much by being unable to concentrate. Women tend to worry about concentration somewhat more than the male nonveterans.

The tendency to worry about being unable to concentrate bears a close relationship to AAG, as is shown in the lower portion of Figure 40. The difference in median values of mean AAG between those who were bothered very much and those who were bothered little amounts to more than 25 points for both veteran and nonveteran students. The direction of the relationship is the expected one--much worry is associated with low AAG. Veterans who were bothered very much are significantly lower in mean AAG (at the 1% level) than other veterans in nine of the twelve basic groups, and those bothered little are significantly higher in mean AAG in eight of the twelve groups. The number of instances of significant differences is smaller for nonveterans. For both veterans and nonveterans, students in the "little or not at all" category earned higher AAG's than other students in all twelve groups. The relationship may of course be enhanced by the fact that the students knew their grades at the time they responded to the questionnaire.

Among 13 responses which were associated with better-than-average AAG for both veterans and nonveterans, nonveterans were more likely than veterans to give the preferred response in ten comparisons, with two ties; this result is significant at the 5% level. Thus, if veterans and nonveterans had been equal in worry about inability to concentrate, the advantage of the veterans in AAG would presumably have been enhanced.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 40. WORRY AND ANXIETY ABOUT CONCENTRATION: ITEM 40(g)

Getting Accustomed to College Study. The second most common source of worry among nonveteran males was "getting accustomed to college study." Item 40(f), like the preceding one, emphasizes a problem of academic adjustment. The results of the analysis are shown in Figure 41.

> Male veterans, male nonveterans, and female students were very similar in amount of worry about getting accustomed to college study; two out of five students were bothered little or none by this problem. Those bothered least earned significantly higher Adjusted Average Grades than those bothered very much.

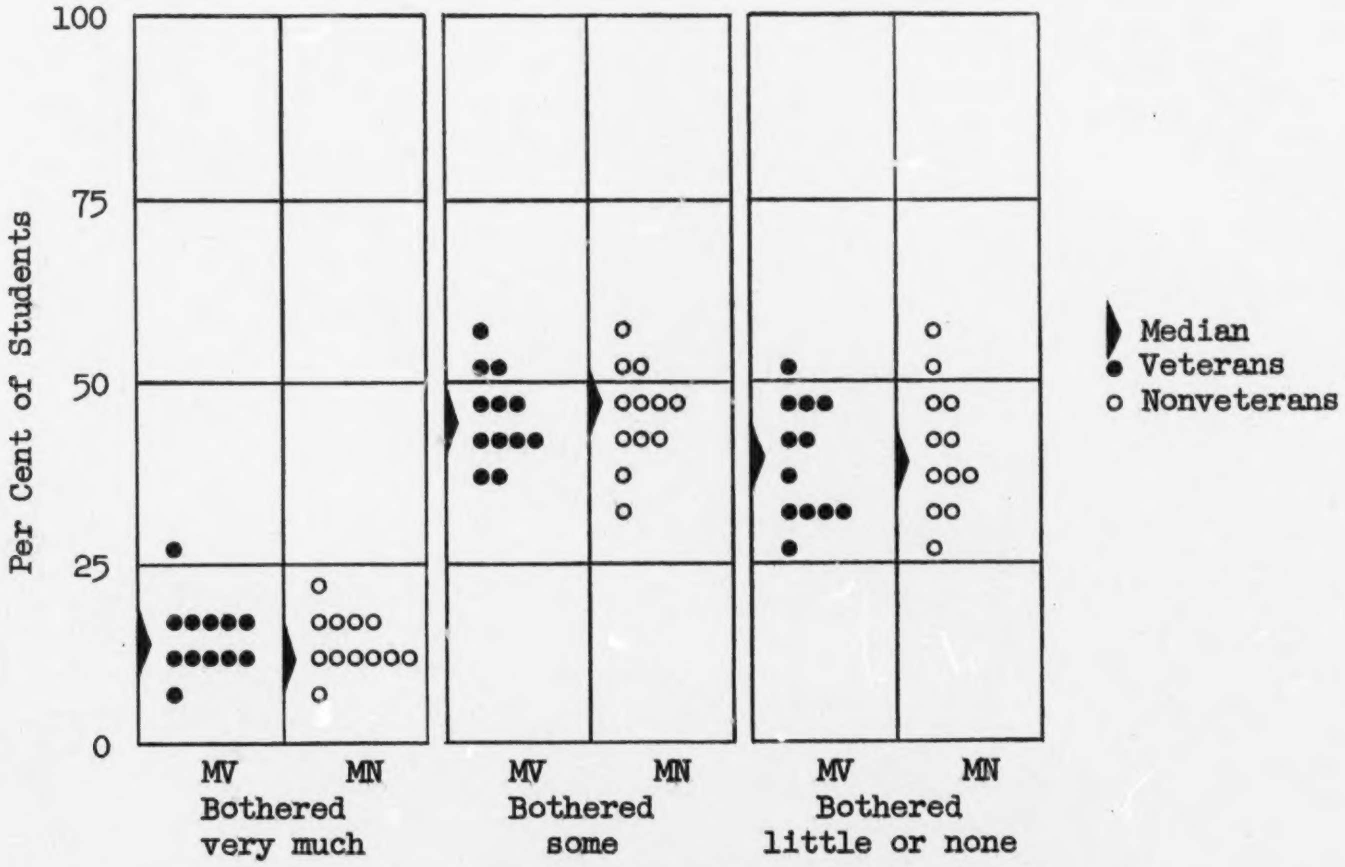
Veteran and nonveteran students were very similar in their tendencies to worry about getting accustomed to college study. About 15 per cent reported that they were bothered very much, 45 per cent bothered some, and 40 per cent little or not at all. Women students were typically very similar to men in this respect, and there was relatively little variability among colleges with respect to the proportion of students in each category.

The relationship of this worry item to AAG is even more striking than that of the preceding one. The difference between the median values of mean AAG for the two extreme item categories is almost 35. In the case of all twelve groups, for both veterans and nonveterans, those bothered very much were lower in mean AAG and those bothered little were higher in mean AAG than the remaining students in the same college groups. Thirty-one of these 48 differences were significant at the 1% level.

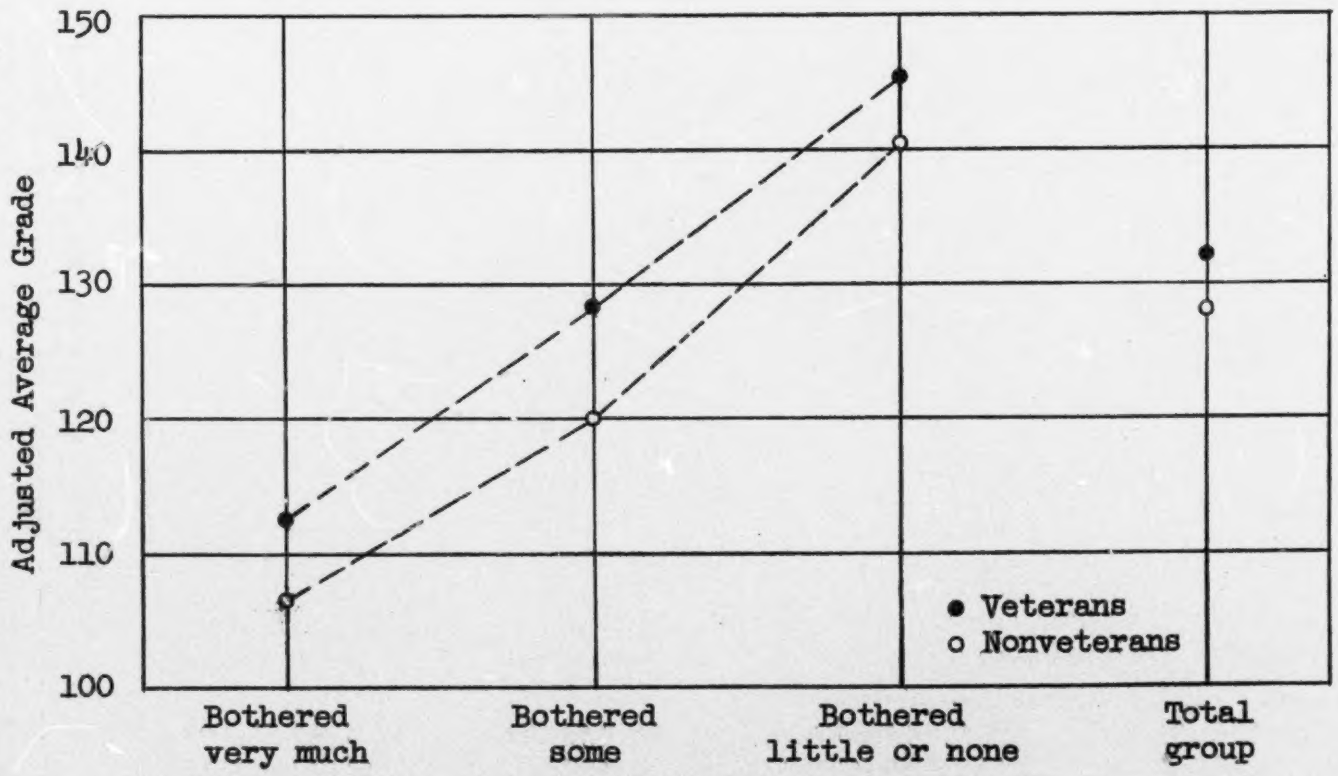
Again it is found that the factor assessed by the item does not help to account for the superiority of veterans in mean AAG; although amount of worry is closely related to AAG, veterans and nonveterans are very similar with respect to amount of concern expressed about getting accustomed to college study.

Deciding What Course of Study to Follow. A pertinent finding for persons interested in student adjustment is the fact that when the sources of worry are put in rank-order (based on the responses of nonveteran students), the top three sources of worry are primarily concerned with academic adjustment. "Being unable to concentrate" and "getting accustomed to college study" were the most common reasons for worry, and the third is "trying to decide what course of study to follow." The results of the analysis of Item 40(k) are shown in Figure 42.

> Veterans appear to have worried somewhat less about choosing a course of study than did nonveterans. Women students were more apt to be worried about this problem than male students. There is a slight but consistent tendency for superior AAG to be associated with lack of worry about choosing a course of study. This item may account to a slight extent for veteran superiority in mean AAG, although the sign test results are not significant.

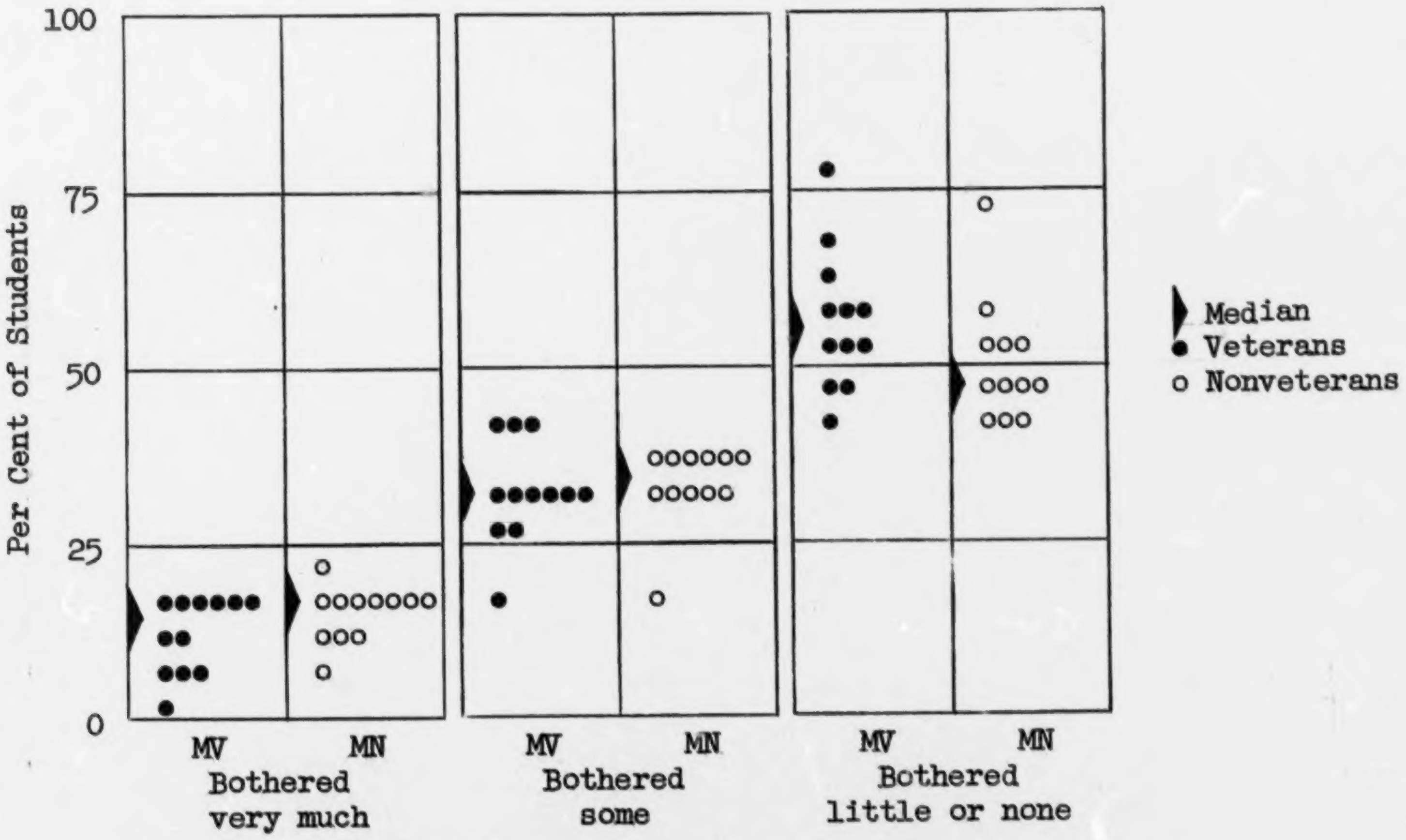


PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE

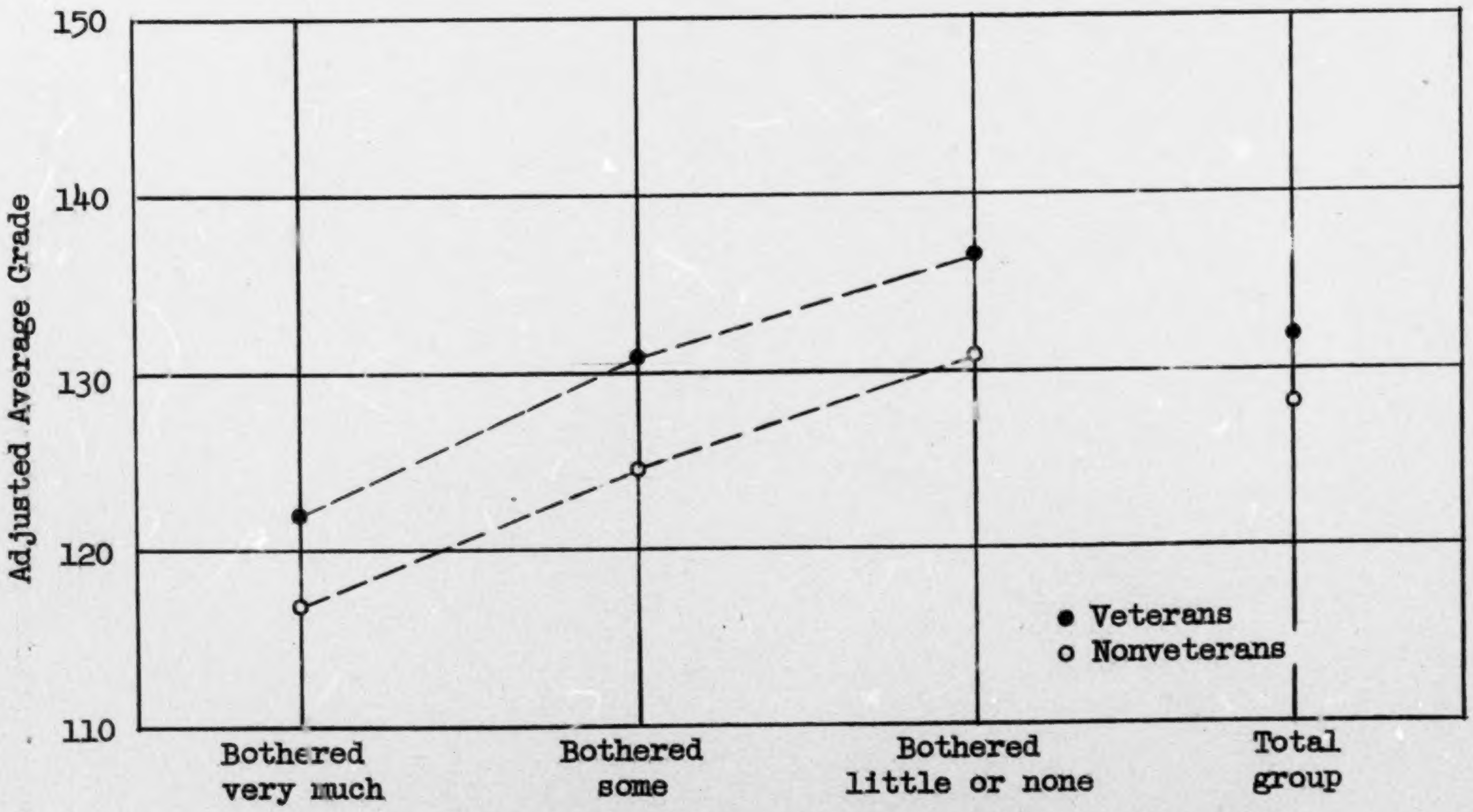


MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 41. WORRY AND ANXIETY ABOUT GETTING ACCUSTOMED TO COLLEGE STUDY: ITEM 40(f)



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 42: WORRY AND ANXIETY ABOUT DECIDING WHAT COURSE OF STUDY TO FOLLOW: ITEM 40(k).

Again the similarity of veterans and nonveterans in amount of worry is rather marked, although there is a slight tendency for the nonveterans to worry somewhat more than veterans about what course of study to follow. The difference is greatest on the "little or not at all" category, where the median value for veterans is about 55 per cent and for nonveterans between 45 and 50 per cent. In ten of the twelve groups fewer nonveterans than veterans checked this response. Only about 15 per cent of the students reported that they were bothered very much about deciding what course of study to follow. These results are consistent with the previous finding that more nonveterans than veterans are uncertain as to the kind of work they will do. Engineering school students apparently worry less about what course of study to follow than liberal arts students, presumably because they have already committed themselves to a course of study within which there is less freedom of choice. Women students, who reported much more often than men that they were undecided about vocational choice, worry more than men about what course of study to follow. A smaller percentage of women reported little or no worry than did male nonveterans in eight out of nine of the groups where comparisons can be made.

Tendency to worry about course of study is associated with lower Adjusted Average Grade, but the relationship is less marked than for the two kinds of academic worries previously discussed. The difference between the median values of mean AAG for the extreme categories of the item is less than 15 points. Nonveteran students who reported little or no worry were superior in mean AAG to other nonveterans in all twelve basic groups; veteran students checking this category were superior in eleven of the twelve groups. However, only three of these twenty-four differences are significant at the 1% level. The hypothesis that the relationship is merely a matter of students' rationalizing grades earned seems less plausible for this item than for certain others which have been discussed. The fact that the results are consistent with those found for certainty of vocational choice tends to confirm the findings for both items.

On the whole, since veterans are slightly less likely to worry about what course of study to follow, and since freedom from worry about choice of study shows some association with Adjusted Average Grade, it seems possible that this item would aid in accounting for veteran-nonveteran differences. Application of the sign test does show a tendency in this direction; the tendency, however, is by no means consistent enough to be statistically significant. The results for this item cannot be considered to help in accounting for the veteran superiority in Adjusted Average Grade.

Making Ends Meet. The source of worry included as Item 40(a) was "making ends meet financially." For this and the succeeding sources of worry, only two categories were used in the analysis: (A) bothered some, or bothered very much, and (B) little or not at all. The combination of the "some" and "very much" responses was necessitated by the fact that the more extreme response was infrequently chosen by the students. The results of the analysis for Item 40(a) are shown in Figure 43.

> A considerably greater proportion of male veteran students than of male nonveterans were bothered about finances; women students were least concerned about making ends meet financially. This item tends only slightly to be related to AAG; students who worried earned somewhat lower AAG's than those not bothered about making ends meet.

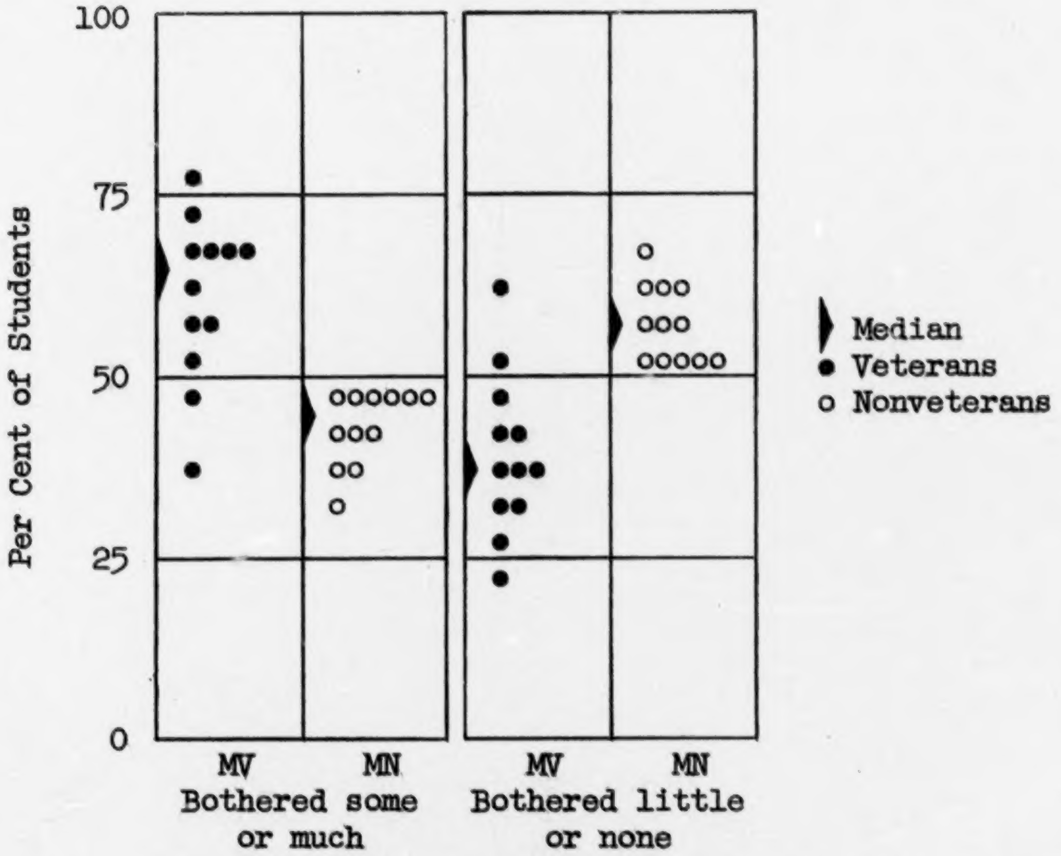
Financial worries, which for nonveterans were fourth in order of importance, ranked second for veteran students. This is the only one of the sources of worry studied where a striking difference between veteran and nonveteran students was found. The median value of the percentage of veterans who were bothered some or very much was about 65, while for nonveterans the median percentage was about 45. Veteran students chose the "bothered some or very much" category more often than nonveterans in all of the basic groups except Stewart, where the proportions were the same. There was considerable variability among the colleges, however, with respect to the proportion of veteran students who reported being bothered by financial considerations. Veterans were most concerned about finances at Evans and Littletown State, where about 75 per cent reported being bothered some or very much about making ends meet. The smallest proportion in this category was found at Stewart, where only about 40 per cent were bothered. The variability is much less when only nonveterans are considered.

Superficially, it might appear strange that students who are given financial assistance through the educational provisions of the GI Bill worry about money more than those who are not given assistance. The reason for the paradox is probably related to the fact that, as has previously been reported, veterans come more often from families whose economic status would preclude college attendance without some financial assistance. Apparently the educational provisions of the GI Bill have encouraged a number of veteran students to enter college, even though the amount of financial assistance is not sufficient to enable them to face with confidence the financial problems entailed.

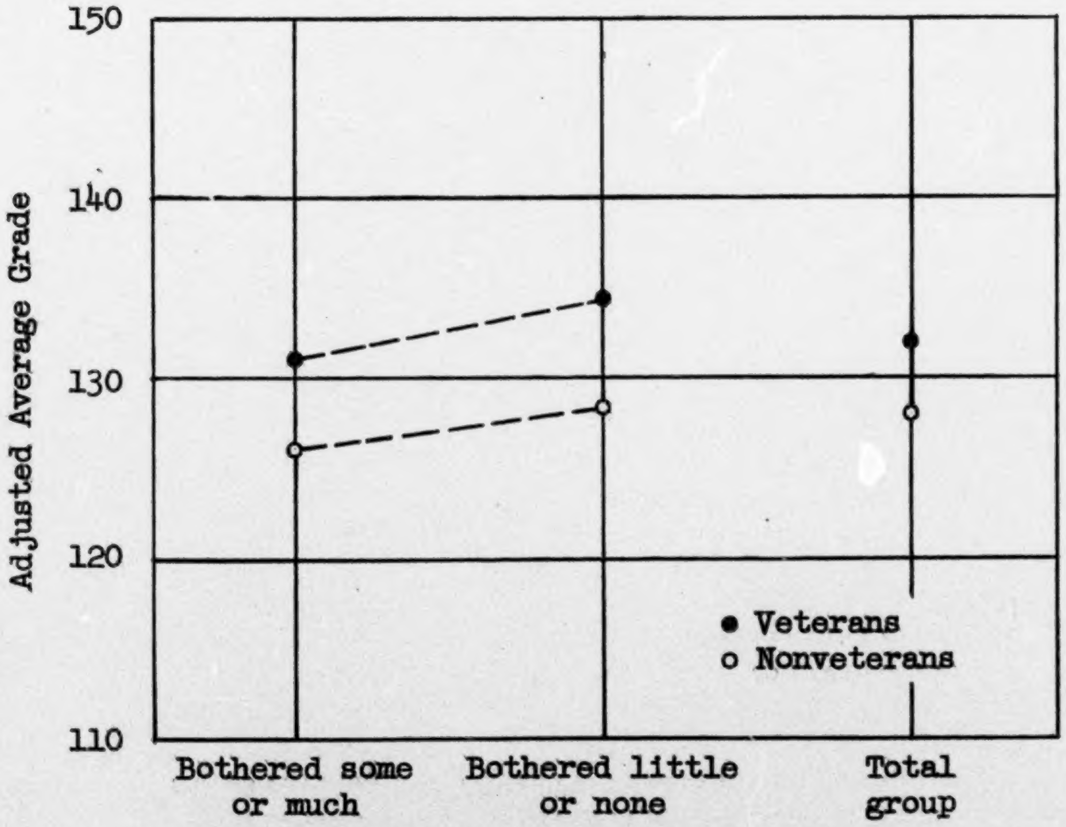
Making ends meet financially is one of the few sources of worry which concern women students less than men. In all of the nine groups where comparisons can be made, women students indicated that they were bothered "some or very much" less frequently than male nonveterans.

There is a slight and generally insignificant tendency for worry about finances to be associated with lower grades relative to ability. Veteran students who worry "little or not at all" are higher in mean AAG than those who are bothered "some or very much" in eight of the twelve groups, and nonveterans are higher in nine of the groups.

In spite of the marked difference in proportions between veterans and nonveterans reporting financial worries, the weak association of this worry



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 43. WORRY AND ANXIETY ABOUT MAKING ENDS MEET: ITEM 40(a)

with AAG prevents the item from having any important bearing on veteran-nonveteran differences in AAG; this conclusion is confirmed by the outcome of the sign test.

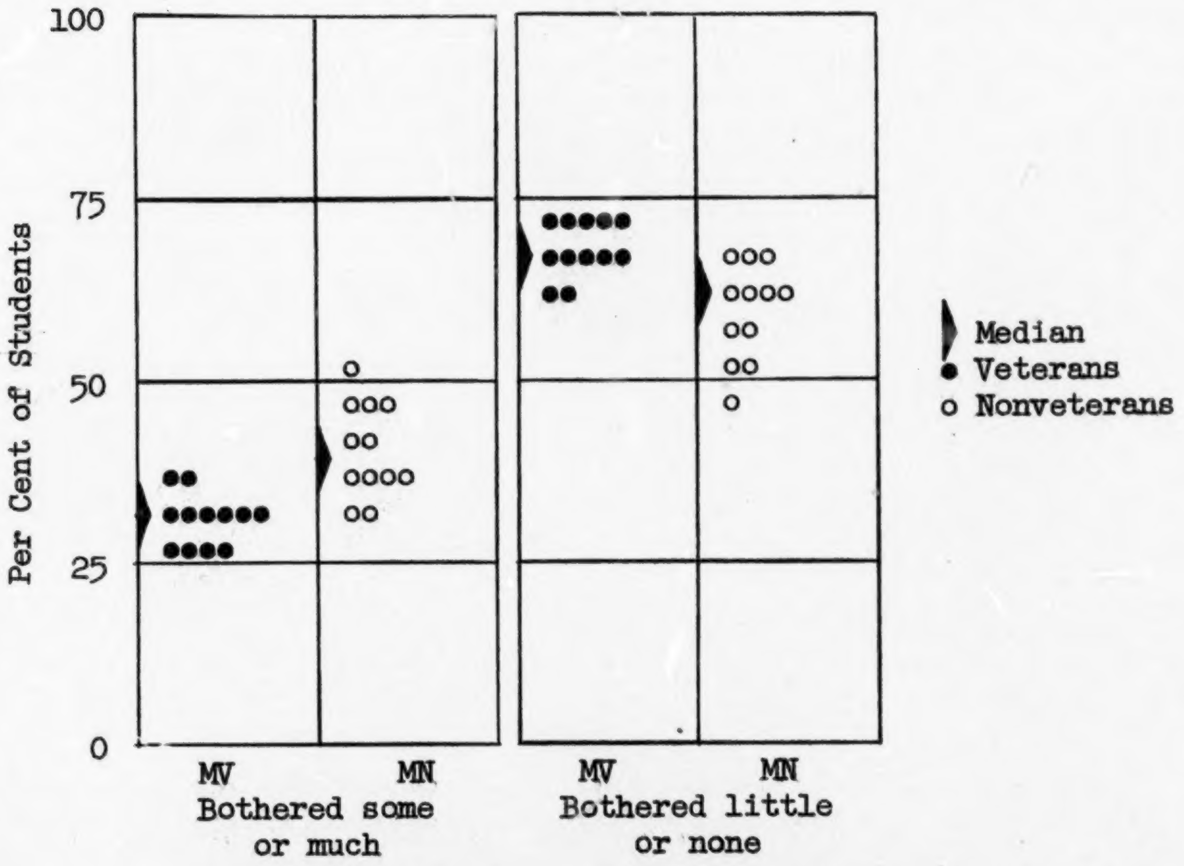
Feelings of Inferiority. The source of worry included as Item 40(j) is "feelings of inferiority, inability to compete with others or to live up to your own standards." This item, like the following one on nervousness, is related to personality or general quality of psychological adjustment. These two items come together in rank order of importance behind the sources of worry concerned with academic and financial problems. The results for Item 40(j) are shown in Figure 44.

> Nonveterans were bothered by feelings of inferiority more often than were veteran students, and women tended to be bothered by inferiority feelings more frequently than the male nonveterans. Among veterans, students who worried about feelings of inferiority tended to earn slightly lower AAG's than those not bothered.

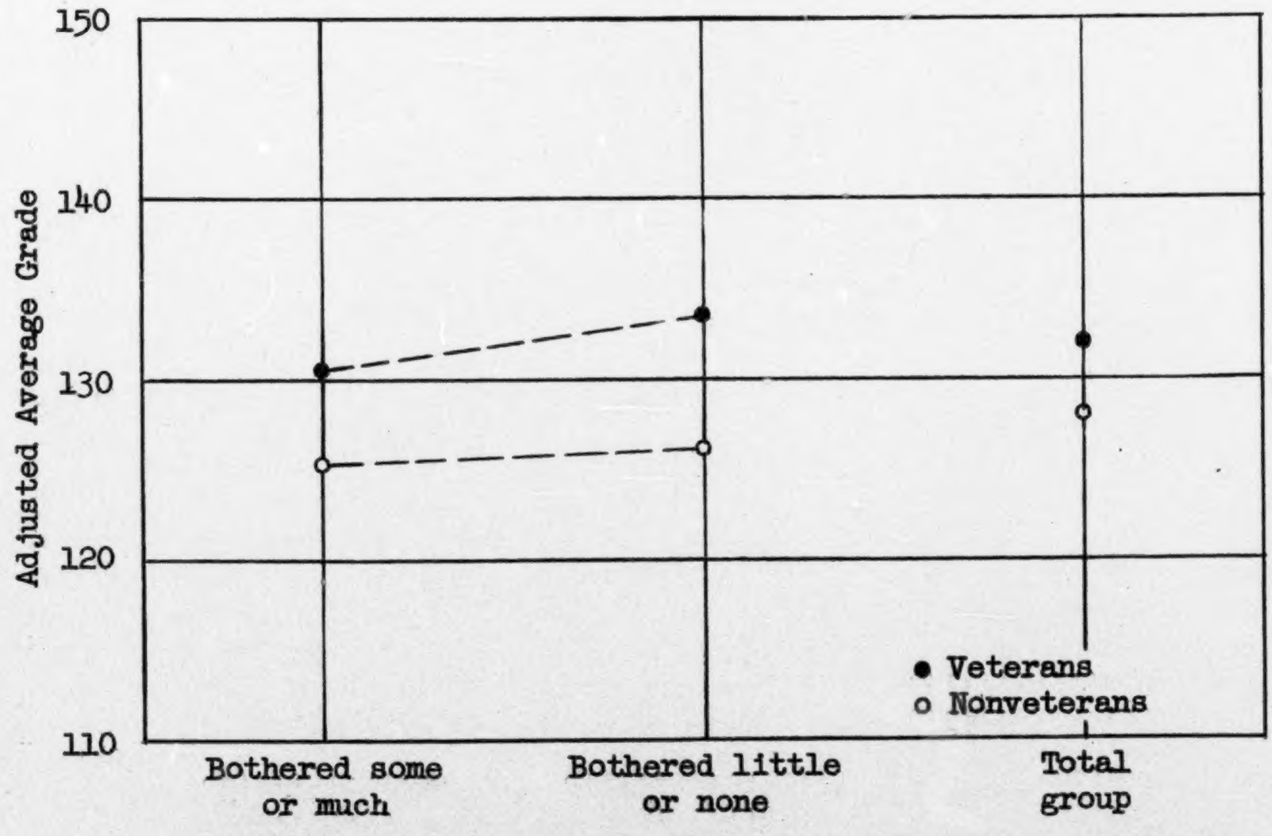
Nonveteran students indicate by their item responses that they worry more than veterans about feelings of inferiority. The median value of the percentage checking "bothered some or very much" is about 30 for veterans and 40 for nonveterans. In all twelve of the basic groups, the percentage for nonveterans exceeds that for veterans, which would be expected to occur by chance less than once in a hundred times. This finding is reasonable in the light of the greater age and experience of the veteran students. The difference in amount of concern about feelings of inferiority is not necessarily due to greater experience making veterans more confident; it is possible that the presence of veteran students has affected the self-confidence of the younger nonveterans. The eighteen-year-old freshman student, who is perhaps away from home for the first time, may feel quite inadequate in competing with the numerous older veteran students.

Women students are again found to exceed the men in amount of worry as indicated by questionnaire responses, although the difference is not great. The median value for women who worry at least some is about 45 per cent as compared with 40 for nonveterans. The percentage of women who reported concern about feelings of inferiority is greater than that for nonveterans in six of the nine groups containing women.

The relationship to AAG of worry about feelings of inferiority is in the same direction as has usually been found--greater worry goes with lower Adjusted Average Grade. This time the association appears to be somewhat closer for veterans than for nonveterans, although it is generally insignificant. In only one group is a significant difference (at the 1% level) found--veterans at Harris who worry about inferiority are significantly lower in mean AAG than those who do not. In ten of the twelve groups the veterans who worry earn a lower mean AAG than those who do not, and in one case there is no difference. Since veterans on a campus with nonveteran freshman students would have generally less reason to indicate that they are



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 44: WORRY AND ANXIETY ABOUT FEELINGS OF INFERIORITY: ITEM 40(j)

bothered by feelings of inferiority unless the feeling is based on a more fundamental personality characteristic, the item may be touching on a more basic problem for veterans than for nonveterans.

Again the item does not help in accounting for the observed superiority of veterans in mean AAG, although they more often than nonveterans possess the characteristic which is associated with higher achievement relative to ability. The validity of the item is too low, especially for nonveterans, to permit a significant result.

Nervousness. The source of worry included as Item 40(d) was simply "nervousness." It was intended that this item might furnish a crude measure of anxiety or neurotic tendency. The results of the analysis are shown in Figure 45.

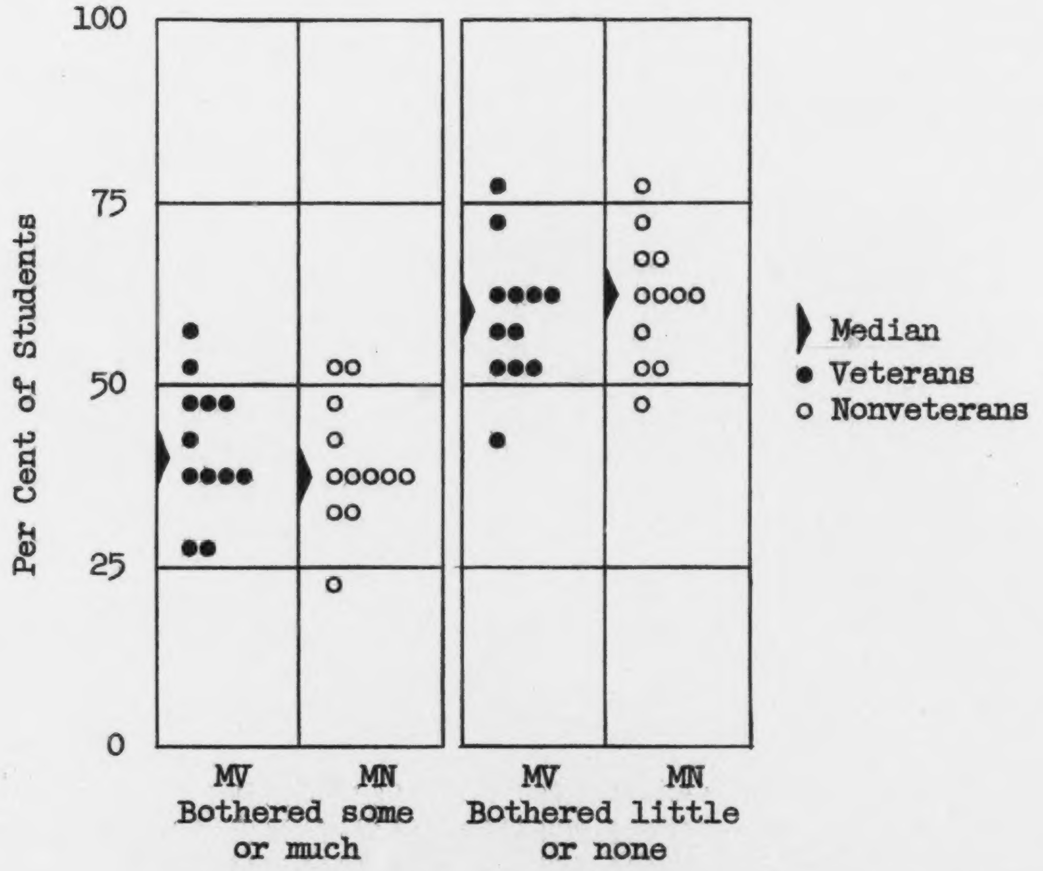
> Veterans tended to be bothered by nervousness only slightly more often than male nonveterans, but neither group reported this worry as frequently as did women students. Among the nonveterans there was a slight tendency for the worries to earn lower Adjusted Average Grades than those not bothered about nervousness.

Again, only a slight difference is found between veteran and nonveteran students in tendency to be bothered by nervousness. In the median group of veterans, about 40 per cent are bothered some or very much, and the proportion is slightly lower for nonveterans. The greater tendency toward nervousness on the part of the veterans is not significant; in only nine of the twelve basic groups are veterans bothered by nervousness more often than are nonveterans.

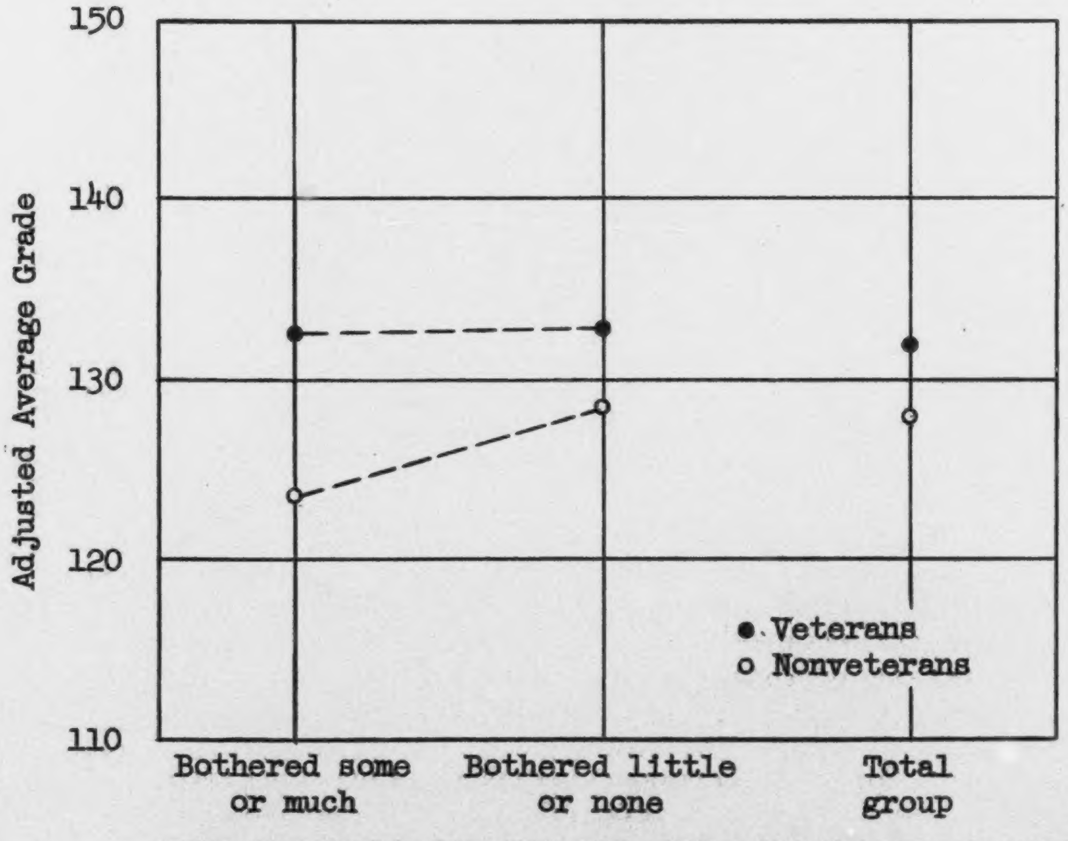
Women students show a greater tendency to worry about nervousness than men. In the median group about 55 per cent of the women students report that they are bothered some or very much, and in all nine colleges where women students were studied, a higher proportion of women than of male nonveterans reported being bothered by nervousness; there was, however, one college in which the male veteran subgroup exceeded the women in this respect.

Variability among colleges was not great for most of the items on sources of worry, and this item is no exception. The largest proportions of worriers about nervousness were at Central State and Evans, where more than 50 per cent reported that they worried some or very much about nervousness. The smallest proportion was at Middle State, where less than 25 per cent of the students were in this category.

As is shown in the lower portion of Figure 45, there is a slight tendency among nonveterans for worriers to earn lower grades relative to ability than those who report little or no worry about nervousness. The association is not significant, however, and for veteran students there is practically no relationship. Because of this insignificant relationship



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 45: WORRY AND ANXIETY ABOUT NERVOUSNESS: ITEM 40(d)

between the two variables, the tendency for veterans to earn higher AAG's than nonveterans obviously cannot be accounted for on the basis of the differential in amount of worry about nervousness.

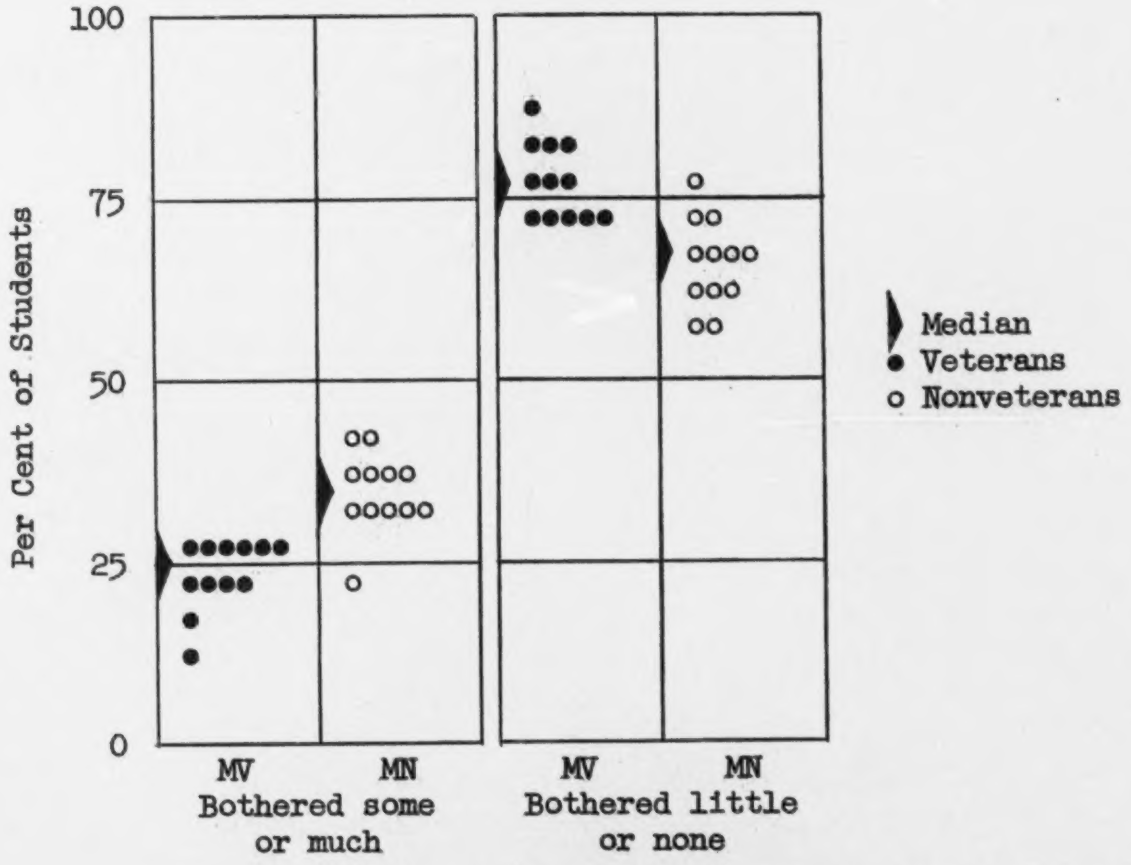
Getting to Know People Socially. Following the worries about academic adjustment, finances, and neurotic tendencies in order of importance come two sources of worry which have to do with social adjustment. The first of these is "getting to know people socially," which is Item 40(h). The results are shown in Figure 46.

> Getting to know people socially bothered nonveterans considerably more than veterans. Women reported concern more frequently than male veterans but less than male nonveterans. Concern over getting to know people is associated with high Adjusted Average Grade. Nonveterans showed a rather consistent tendency to choose the responses associated with better-than-average Adjusted Average Grade more often than did veterans.

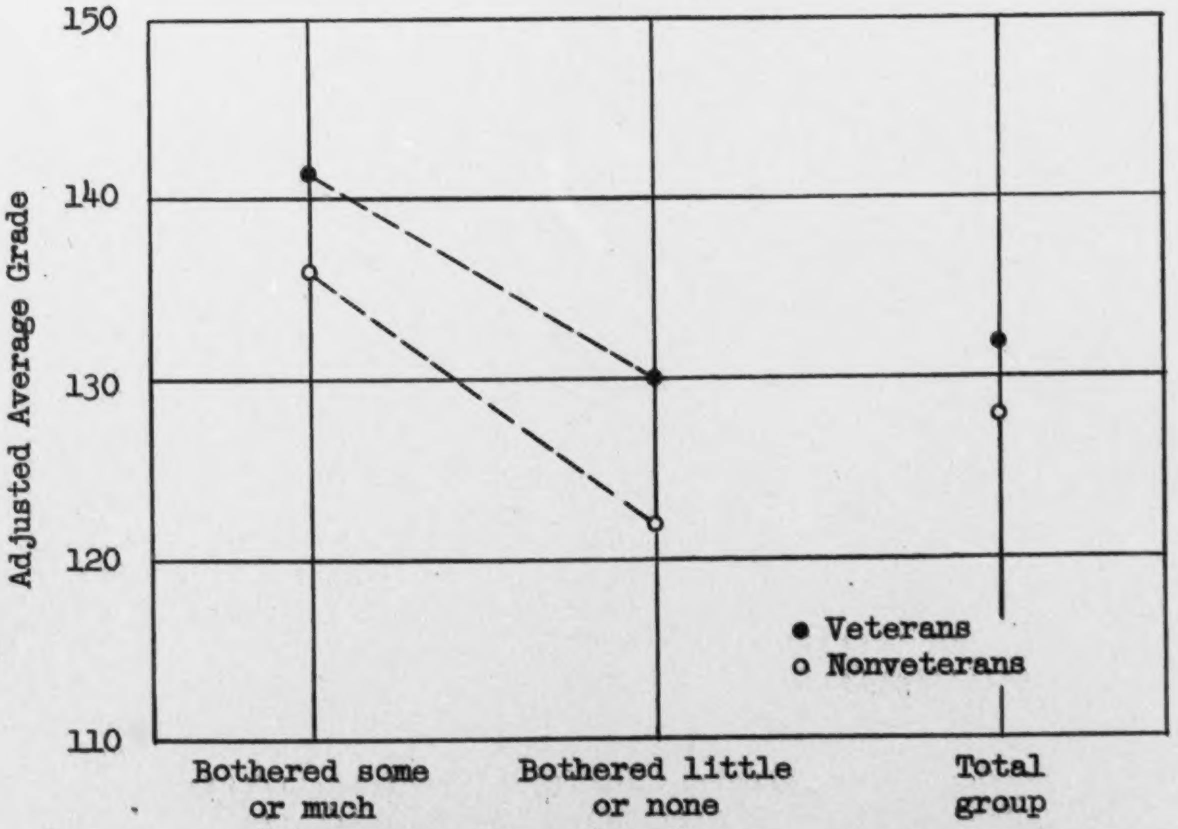
Veteran students are apparently less concerned about getting to know people socially than the nonveterans. The median percentage of students who reported being bothered some or very much is about 25 for veterans and 35 for nonveterans. In eleven of the twelve basic groups, proportionately more nonveterans than veterans expressed concern about getting to know people socially. Women students typically worried more than the veteran men but less than the nonveteran men about this aspect of social adjustment. The fact that women are less concerned than the male nonveterans, who are about equal in age, perhaps reflects the greater rate of physical maturation in girls.

In the case of every source of worry so far considered, greater worry is associated with lower AAG. Worry about getting to know people socially, however, is associated with higher AAG. The difference between the median values is more than 10 points of AAG, both for veterans and nonveterans. In all twelve groups, veterans who reported worry earned higher AAG's, on the average, than those who did not, and in eleven of the twelve groups the nonveterans who worried were higher. Five of these twenty-four differences were significant at the 1% level, and an additional five were significant at the 5% level. At least in their own estimation, it would appear that the overachievers are somewhat less successful in their social relationships than are the underachievers. One possibility is that those who worry are those who spend less time in social activities, being less successful in social relationships, and who therefore have more time to devote to academic pursuits.

We find, then, that nonveteran students possess more often than veterans the characteristic which is associated with high Adjusted Average Grade: a tendency to worry about getting to know people socially. This item would therefore lead to the expectation that nonveterans rather than veterans would excel in grades relative to ability. The sign test showed that in ten out of eleven instances where both veterans and nonveterans had high mean AAG's, the veterans were more likely to be represented than the nonveterans; this tendency is significant at the 5% level.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 46. WORRY AND ANXIETY ABOUT GETTING TO KNOW PEOPLE SOCIALLY: ITEM 40(h)

Trying to Make Up a Deficiency in Preparation. Another source of worry which is concerned with the academic adjustment of students was stated, in Item 40(l), as "trying to make up a deficiency in preparation for some course." This is the only item relating to scholastic problems which was not near the top of the list in order of importance. The results of the analysis are shown only in Appendix Table 40(l).

> About a third of the students, whether male veteran, male nonveteran, or female students, were bothered about trying to make up a deficiency in preparation for some course. Students concerned about this source of worry earned significantly lower AAG's than those not bothered by trying to make up a deficiency.

Approximately one third of the students, regardless of veteran status, reported that they were bothered some or very much about making up a deficiency in their training. Being away from school for two or three years did not, according to this evidence, produce any marked feeling of concern on the part of the veterans about being inadequately prepared to undertake their college work. Women students were not found to worry more than men about making up a deficiency.

Variability among colleges was not unusually great, but it is of interest that the smallest proportion of students who reported worry about making up a deficiency (exclusive of interrupted groups) was found at Taylor. This may reflect the fact that Taylor has a rather elaborate system of placement tests in the initial classification of students.

As is true of the other academic worry items, worry about making up a deficiency bears a rather close relationship to Adjusted Average Grade. The difference between the median values of the mean AAG's of those in the two item categories is about 20 points, both for veteran and nonveteran students. In none of the groups, either for veterans or nonveterans, did the students who were bothered little or none earn lower grades than those who worried some or very much. In 15 of the 24 subgroups, the difference was significant at the 1% level. The highly significant relationship is consistent with the results found for other items dealing with worry about academic adjustment. Because of the high degree of similarity between veterans and nonveterans in the proportion who worry, the item obviously cannot help in accounting for the veteran superiority in AAG.

Relations with Members of the Opposite Sex. The second source of worry dealing with social adjustment is stated in Item 40(m) as "relations with members of the opposite sex." The importance of this source of worry, as indicated by the proportions of students who report that they are bothered some or very much, is about the same as that of the other social adjustment item ("Getting to know people socially."). Concern about social adjustment, according to these findings, follows academic adjustment, finances, and neurotic tendencies in order of importance. The results for this item are shown only in Appendix Table 40(m).

> More nonveterans than veterans expressed concern over relations with members of the opposite sex; little difference existed between male nonveterans and female students. Again tendency to worry is associated with high AAG, but to a much lesser degree than was found for worry about getting to know people socially.

The median values of the percentage reporting that they were bothered some or very much were about 25 for veterans and 30 for nonveterans. The results are thus consistent with those of the previous item on social adjustment in showing greater concern on the part of the nonveterans, although the difference is not as marked. The percentage reporting worry is greater for nonveterans in nine of the twelve basic groups.

The median percentage of women students who worry about relations with members of the opposite sex is the same as for nonveteran males, when the comparison is based on the nine groups where women were studied. In these nine groups, the percentage is greater for women in six cases. The sex difference in worry about this aspect of social adjustment appears to be very slight.

The relation between amount of worry and Adjusted Average Grade is again the opposite of the one usually found--greater worry is associated with higher AAG. Both of the items dealing with concern about social adjustment have this characteristic in common. In the case of this item on worry about relations with members of the opposite sex, however, the relationship to AAG is much less marked than for the more general one on getting to know people socially. The worried veterans were superior to the unworried ones in only eight of the twelve groups (there was no difference in one group), and the worried nonveterans also excelled in eight of the twelve groups. In only one group was a difference found which is significant at the 1% level. The relationship to AAG thus cannot be considered significant, and the superiority of veteran students cannot be ascribed to any characteristic measured by this item.

Health Problems. The importance of health problems as sources of worry among college students is relatively low, according to these results. The source of worry included as Item 40(e) was "health problems (e.g., eyes, sinus trouble.)" The choice of relatively minor health problems as examples was made deliberately because of the assumption that serious physical handicaps would occur rarely among college students. The results of the analysis are shown only in Appendix Table 40(e).

> Only about a quarter of the students indicated that they were bothered by health problems. The proportions bothered were about equal for male veterans and male nonveterans, and only slightly higher for women. This item bears no marked relationship to Adjusted Average Grade.

Between 25 and 30 per cent of the students, whether veteran or nonveteran, reported being bothered some or very much by health problems. It is worthy of note that variability among the colleges is very small with respect to percentages in the two questionnaire categories; apparently health problems are, by and large, unrelated to the characteristics of the various institutions studied. Women students tend to worry about health only slightly more often than the male students. This greater concern expressed by women might result from acceptance of the popular stereotype that women are the "weaker sex" rather than from any actual difference in health.

There is no marked tendency for concern about health to be associated with Adjusted Average Grade, either for veteran or for nonveteran students. None of the differences are significant at the 1% level. It can reasonably be concluded that concern about health is unrelated to grades relative to ability. Obviously the superiority of veteran students in AAG is not related to concern about health.

Illness or Death in Family. The second item concerning health pertains to the student's family rather than to the student himself. The source of worry, as stated in Item 40(c) was "illness or death in your family." Results for this item are shown only in Appendix Table 40(c).

> Relatively few students reported illness or death in the family as a source of worry. Veterans tended to be bothered on this score slightly more often than male nonveterans, and female students more frequently than either male group. As with the student's own health, family health appears to bear no significant relationship to Adjusted Average Grade.

Only about 15 per cent of the nonveterans and a slightly higher proportion of veterans indicated that they were bothered some or very much about illness or death in the family. In ten of the twelve groups fewer nonveterans than veterans were concerned about this source of worry. The slightly greater amount of worry on the part of the veterans might be related to the fact that, on the average, their parents would be older and somewhat more susceptible to ill health. Women students consistently express greater concern about family health than male nonveterans. Again we find relatively little variability among the various institutions in amount of concern expressed.

Being bothered about the health of members of the family has little relation to AAG. Among veterans there is practically no relationship, while among nonveterans greater worry tends to be associated with lower AAG. None of the differences is significant at the 1% level. Concern about illness or death in the family bears no relation to the higher grades relative to ability of veteran students.

Strained Personal Relations. Another source of worry which is related to social adjustment was stated in Item 40(i) as "strained personal relations with close relatives or friends." The results are shown in Appendix Table 40(i).

> Strained personal relations were a source of worry for relatively few students; little difference existed between veterans, nonveterans and female students in the proportion claiming to be bothered. There is a very slight tendency for students who reported worry over personal relations to earn lower AAG's.

Only a few of the students--about 15 per cent--reported that they were bothered some or very much. There was no significant difference between veterans and nonveterans in tendency to worry about strained personal relations, but women students reported concern somewhat more often than men. There was comparatively little variability among the college groups, except that Eastern City veterans expressed concern considerably more often than students in other colleges. This tendency was shown by the interrupted veterans as well as the freshmen.

A slight and generally insignificant tendency is shown for greater worry to be associated with lower Adjusted Average Grade. No differences were found which were significant at the 1% level. The greater mean AAG of veteran students cannot be explained on the basis of a differential amount of worry about strained personal relations.

Housing. The last of the sources of worry to be discussed is one referred to in Item 40(b) as "lack of adequate housing accommodations." The results of the analysis of this item are shown in detail in Appendix Table 40(b).

> In a typical group only about 10 per cent of the nonveterans and a slightly greater proportion of veterans expressed concern about lack of adequate housing, and even fewer women were worried about housing accommodations. In some institutions, however, a third or more of the veterans were bothered by the problem. The relationship between worry about housing and Adjusted Average Grade was negligible.

Slightly more than 10 per cent of the nonveterans said that they were bothered some or very much about housing, and the percentage of veterans was only about 5 per cent greater, in the median group. It would appear that the importance of the housing problem was not great in the typical university, although at some institutions a considerably greater amount of concern was expressed. At Littletown State almost a third of the students, both veteran and nonveteran, were in the "worried" category, and at Southern Tech almost 40 per cent expressed concern. Women students were less concerned than men about housing, presumably because dormitory provisions are usually more adequate for women and the overcrowding of housing facilities was ordinarily much greater for men.

The relationship between concern about housing and AAG is negligible, although it is interesting to discover the direction of the relationship: greater worry is associated with higher rather than lower Adjusted Average Grade. In only one group was a difference found which is significant at the 1% level. This item does not, of course, help in accounting for the veteran superiority in AAG because of the small differences in amount of worry and the insignificant relationship with AAG.

Other Sources of Worry. Item 41 was a free-answer question designed to elicit statements about sources of worry not included in Item 40. The question was, "Are there any problems not mentioned in the previous question which have been bothering you in the past six months?" Yes and No responses were presented for checking, and the additional question, for those who said Yes, "What general sort of problems?" The Yes-No responses were not tabulated. The responses to the free-answer question were coded, and the detailed results are presented in Appendix Table 41.

> Relatively few students added anything to the list of possible worries presented in the previous items; fewer than one in ten veterans mentioned an additional source of worry, and a somewhat greater proportion of nonveterans and women cited further problems which bothered them. Worries mentioned were quite varied, with "worry about examinations, fear of flunking" the most frequently given.

Only a small proportion of the students replied to the free-answer part of Item 41, and fewer veterans than nonveterans responded. Less than 10 per cent of the veterans wrote in a response; the proportion of male nonveterans and of females responding was almost 15 per cent. This difference does not necessarily mean that the veterans had fewer things bothering them; veterans may have been somewhat less willing to go to the trouble of writing out their worries.

Eight categories were used in coding the responses to Item 41. The number of students in each category is necessarily very small since less than 15 per cent in a typical group made any response. The categories most frequently chosen are as follows:

(A) Tensions or conflicts concerning contemporary social or economic institutions, and/or worry about economic, national or international situations at time of graduation. About 2 per cent of the students gave responses coded as A.

(B) Indecision regarding type of future work for which to train, and/or whether or not to plan on post-graduate training. About 1 per cent of the students gave responses of this type.

(C) Worry about examinations, fear of flunking. This is the most commonly given type of response. In the median group, only about 3 per cent gave answers classified as C, but in some groups as many as 8 per cent indicated worry about examinations or flunking.

(H) Insufficient time or faulty division of time. Less than 1 per cent of the veterans and about 3 per cent of the nonveterans gave responses in this category.

Responses which were classified as belonging in the remaining categories occurred even more rarely. These categories were as follows:

(D) Indecision regarding continuing work vs. leaving to take a job.

(E) Homesickness.

(F) Religious or moral conflicts.

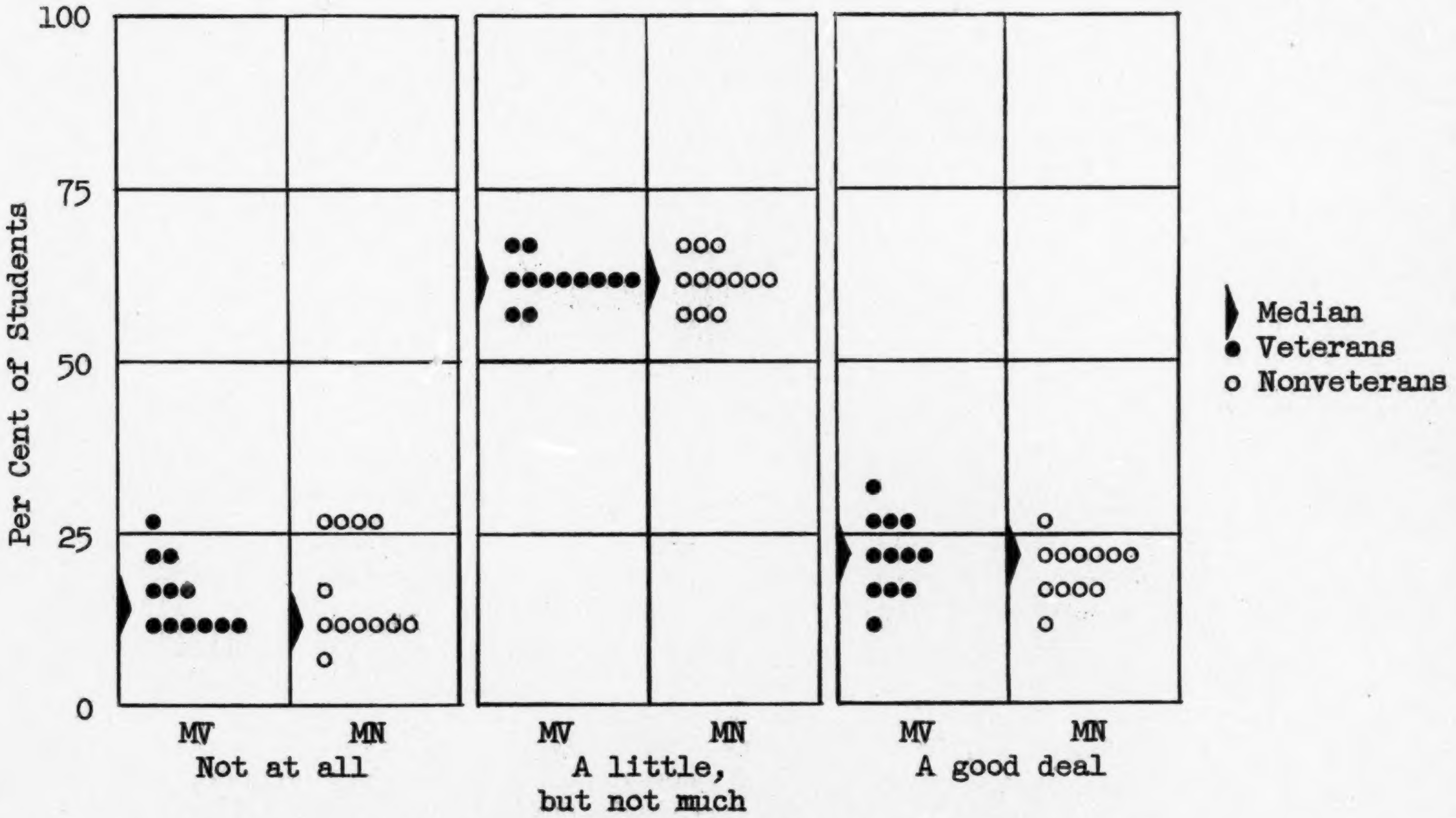
(G) Parental or family conflicts indirectly involving the respondent.

The number of cases in any one category is insufficient to expect satisfactory reliability of the mean AAG values. It might be mentioned only that students who worry about examinations or flunking tend to earn low AAG's, which of course is consistent with the results of other items dealing with concern about academic problems.

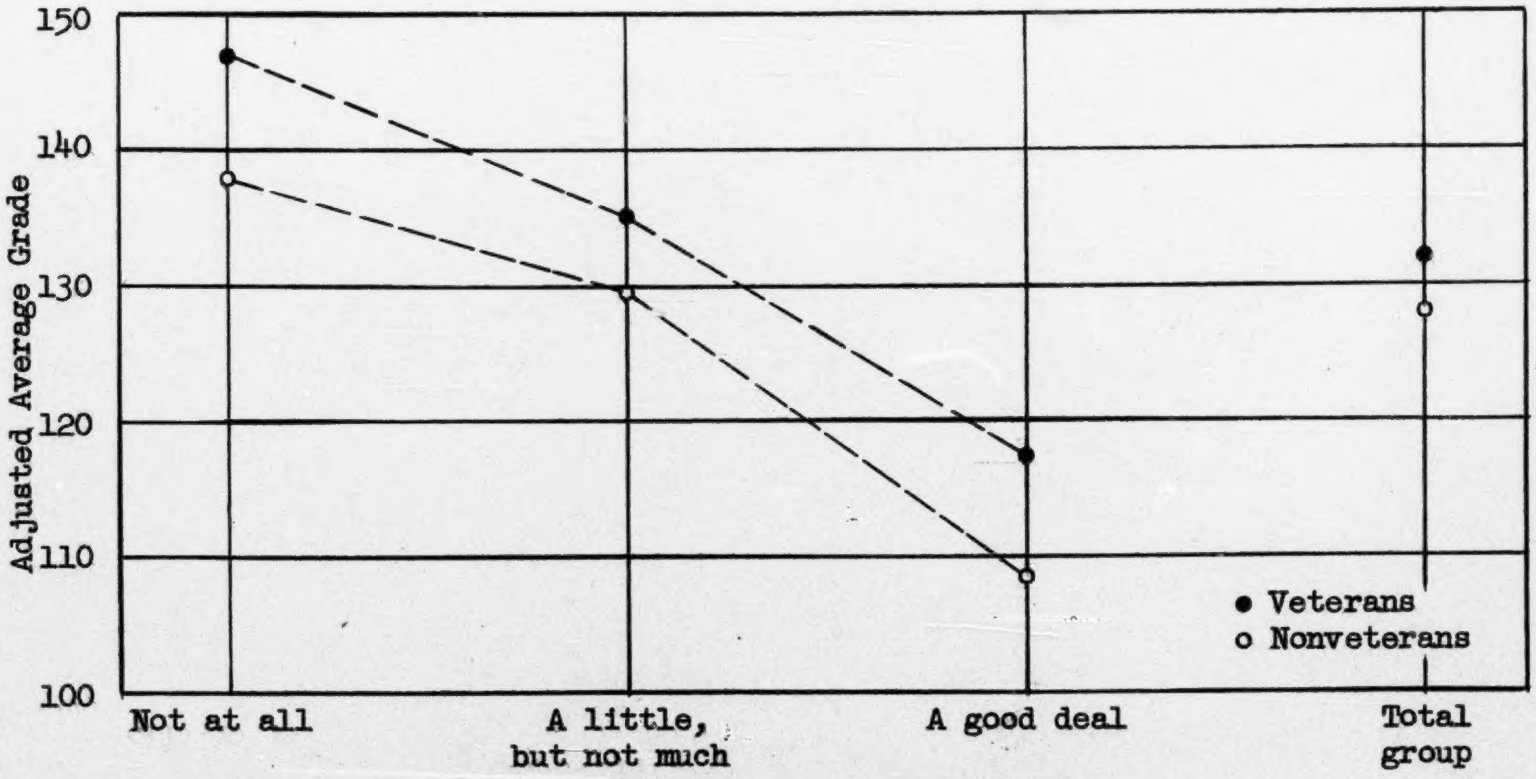
The Influence of Worry on College Work

The study of the worry items in relation to AAG, as described above, indicates that in general greater worry is associated with lower grades in relation to ability. Item 42 of the questionnaire is concerned with the students' judgments as to the effects of worry on academic work. The question as stated is, "How much would you say that any of the problems mentioned on the previous page--either the ones listed in Question 40 or any other--have interfered with your college work in the past six months?" The response categories were (A) have not interfered at all, (B) have interfered a little, but not much, and (C) have interfered a good deal. The results are shown graphically in Figure 47.

> Most students felt that their work had been affected by worries to some extent, although only one in five thought the interference had been considerable. Veterans, nonveterans and women students were very similar in their responses to this question. The Adjusted Average Grades bore out the students' opinions; those who felt that worries had interfered a good deal did in fact earn much lower grades than those who reported no interference.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 47. EXTENT TO WHICH WORRIES AND ANXIETIES HAVE INTERFERED WITH COLLEGE WORK: ITEM 42

About one fifth of the students in the typical college group reported that their worries had interfered a good deal with their college work. Only 15 per cent felt that the problems had not interfered at all; the great majority (about two thirds) took the intermediate position ("interfered a little"). Male veterans, male nonveterans, and women showed roughly the same proportions, in general, choosing each category.

The relation of the item to AAG indicates that the testimony of the students is consistent with the findings previously reported--that greater worry is usually associated with lower grades relative to ability. Those students who felt that their problems had interfered a lot tended to earn low AAG's (the median values are about 120 and 110 for veterans and nonveterans respectively), while students who reported no interference tended to earn high AAG's (medians are about 150 and 140). In all twelve basic groups the "interfered not at all" students, both veteran and nonveteran, were superior to students choosing other categories; similarly in all twelve groups the students choosing "interfered a good deal" were lower than other students in every case, both for comparisons involving veterans and nonveterans. Of the forty-eight comparisons involved, twenty-four were significant at the 1% level of confidence. The high relationship may, of course, be accounted for in part by what we have previously referred to as rationalization: students who are doing poorly may attribute their failure to worry. It almost seems that students are willing to attribute their success or failure to any plausible reason which is presented to them.

Because of the high degree of similarity between veterans and nonveterans in the proportions choosing the various categories, it is apparent that the higher standing of veterans in AAG cannot be attributed to whatever characteristic is assessed by this item.

From a methodological standpoint, it is noteworthy that although almost one fourth of the students in the typical group reported that they seldom or never worried, only 15 per cent reported that worries had not interfered at all with their college work. Whether this resulted from the fact that one item preceded and the other followed the check-list of worries, or whether it resulted from the difference in wording cannot be answered from these data.

Conclusions

In response to a general question about tendencies to feel worried and anxious or upset, only about one fourth of male college students (in the median group) reported that they seldom or never worried. About 20 per cent, at the other extreme, said they felt worried and anxious frequently. There is no tendency for veterans to worry more than male nonveterans; but female students report worries more often than men in most of the colleges where their responses were studied.

On the basis of the questionnaire responses of nonveteran men, it seems that problems related to scholastic adjustment are the most common sources of worry and anxiety. "Concentration," "getting accustomed to college study," and "deciding what course of study to follow" were the three most common sources of worry. More than half the nonveteran students, in the median groups, reported being bothered some or very much about each of these problems.

"Making ends meet" was the next most common source of anxiety. The most marked difference between veteran and nonveteran students was with regard to finances, veterans showing a definitely greater tendency to worry about making ends meet. The median percentage of veterans who said they were bothered some or very much was about 65, as compared with a median value of about 45 for nonveterans.

Concern about personal adjustment appears to be next in order of importance. The sources of worry as stated in the questionnaire were "feelings of inferiority" and "nervousness." In a typical college group a third of the male students showed some concern about such symptoms of neurosis, although veterans were bothered somewhat less often than nonveterans about feelings of inferiority.

Next in order of importance as sources of worry seems to come social adjustment, as judged by the frequency of worries about "getting to know people socially," and "relations with members of the opposite sex." About a fourth of the veterans and a somewhat larger proportion of nonveterans indicated concern about these problems.

Health problems, involving either the students themselves or their families, are low in importance as reasons for worry, according to the median values found. Housing is also low on the list, as is "strained personal relations." Relatively few students took advantage of an opportunity to report other worries in a free-answer item.

Women students as a general rule reported being bothered by these problems more often than male students. Whether this finding is the result of a greater tendency toward neuroticism among women or a general acceptance of the stereotype that women are more emotional cannot, of course, be told from these data. It is interesting to note that the two sources of worry that bother women much less than men are "making ends meet financially" and housing. Such a finding might have been foretold on the basis of the role of women in our society. Women exceed men most in frequency of being bothered by nervousness, according to these results.

When asked if any of the problems had interfered with college work, about two thirds of the students answered "a little, but not much," and about a fifth said "a good deal." There was a marked tendency for students who thought their problems interfered a good deal to earn low grades relative to ability. This finding may merely be another example of the tendency for low-achieving students to blame their failure on any plausible reason which is suggested to them.

With respect to the relation of sources of worry to Adjusted Average Grade, the most sweeping conclusion that can be drawn is that worry is associated with lower grades relative to ability. There are several interesting exceptions, however. Those students who worry most about social adjustment ("getting to know people socially" and "relations with members of the opposite sex") tend to earn higher grades than those who worry little or not at all. It would seem that satisfaction with one's social adjustment is slightly detrimental to scholastic achievement; an obvious hypothesis is that the more studious freshmen feel that they are missing the social side of college life. The other source of worry where greater worry tends to go with high AAG is housing; but the relationship here is very slight and certainly not significant.

The relationship between amount of worry and AAG is most marked for the sources of worry concerned with academic adjustment. These relationships are highly significant, in a statistical sense; but the interpretation of the responses as rationalizations for grades already earned must again be considered. It is quite possible that the relationships of the items to grades would be even closer than to AAG.

On the basis of the sign test results, two of the items may be considered relevant to veteran-nonveteran differences in Adjusted Average Grades. Both with respect to worry about inability to concentrate and worry about getting to know people socially, nonveterans showed a greater tendency to give responses associated with higher Adjusted Average Grades. It would appear, then, that if these worries had been equally prevalent among veterans and nonveterans, the advantage of the veterans in AAG would have been enhanced. It should be understood, of course, that these items, although significant at the 5% level, may only be symptomatic of underlying differences between the two groups; there is no intention to imply that these worries caused the veterans to do worse than they would have done had their pattern of worries matched that of nonveterans.

RB-50-17

ADJUSTMENT TO COLLEGE

A STUDY OF 10,000 VETERAN AND NON-VETERAN STUDENTS IN 16 AMERICAN COLLEGES

Chapter VIII. How College Students Spend Their Time

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and
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April 28, 1950

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Chapter VIII

HOW COLLEGE STUDENTS SPEND THEIR TIME

Among various hypotheses as to the factors responsible for the higher grades relative to ability earned by veteran students, the hypothesis that veterans studied more and spent less time in "frivolous" activities would seem well worth investigating. A number of items included in the questionnaire were concerned with the number of hours in a typical week spent by students in studying, athletics, extracurricular activities, social affairs, and other activities which ordinarily consume a significant proportion of the college student's time. As usual, the analysis was directed at finding the frequency with which the various questionnaire categories were chosen, the relationship between the characteristic assessed by each questionnaire item and Adjusted Average Grade, and the influence of the characteristic in producing the observed difference between veteran and nonveteran students in grades relative to ability.

Most of the information on disposition of time was derived from one question, which had a number of parts. The question (Item 22) was, "During the past week, how many hours did you spend at each of the following activities? (If the past week was not typical, indicate the number of hours for a typical week.)" Nine activities were listed, including attending class, studying, athletics, extracurricular activities, social activities, attending lectures and concerts, bull sessions, paid employment, and "other nonroutine activities." In order to reduce the number of response categories, the numbers indicating hours spent which were written into the questionnaire by the students were coded, ordinarily three categories being employed in the analysis of the item.

One problem which was encountered in the analysis of certain of these items was the presence of an unusually large proportion of students in the "no response" category--students who failed to enter a number opposite an activity. This tendency was especially marked on items where the amount of time usually spent was very small; for example, for Item 22(f) (attending public lectures, concerts, and other cultural activities), about a fifth of the students gave no response, and less than a third reported spending more than one hour. (Cf. Appendix tables for the proportion of students in the "no response" category.) Presumably the students who did not write in a response were those who had spent little or no time in that activity; it seems unlikely that students spending a substantial amount of time in an activity would omit the item. Therefore the "no response" group was merged with the category representing the smallest number of hours, which was also the modal response of those who did respond.

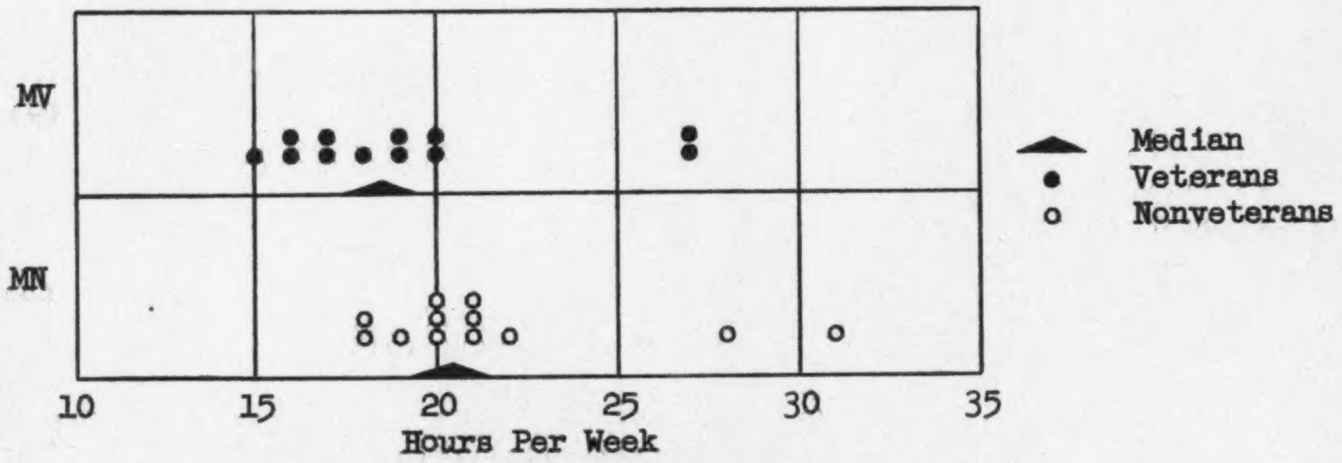
Disposition of Time

Attending Classes. The first activity listed, in Item 22(a), is "attending classes, labs, regularly scheduled course conferences." The purpose of including this item is to investigate differences between veterans and nonveterans with respect to work load and to discover the relation between work load and Adjusted Average Grade. The results of the analysis are shown in Figure 48.

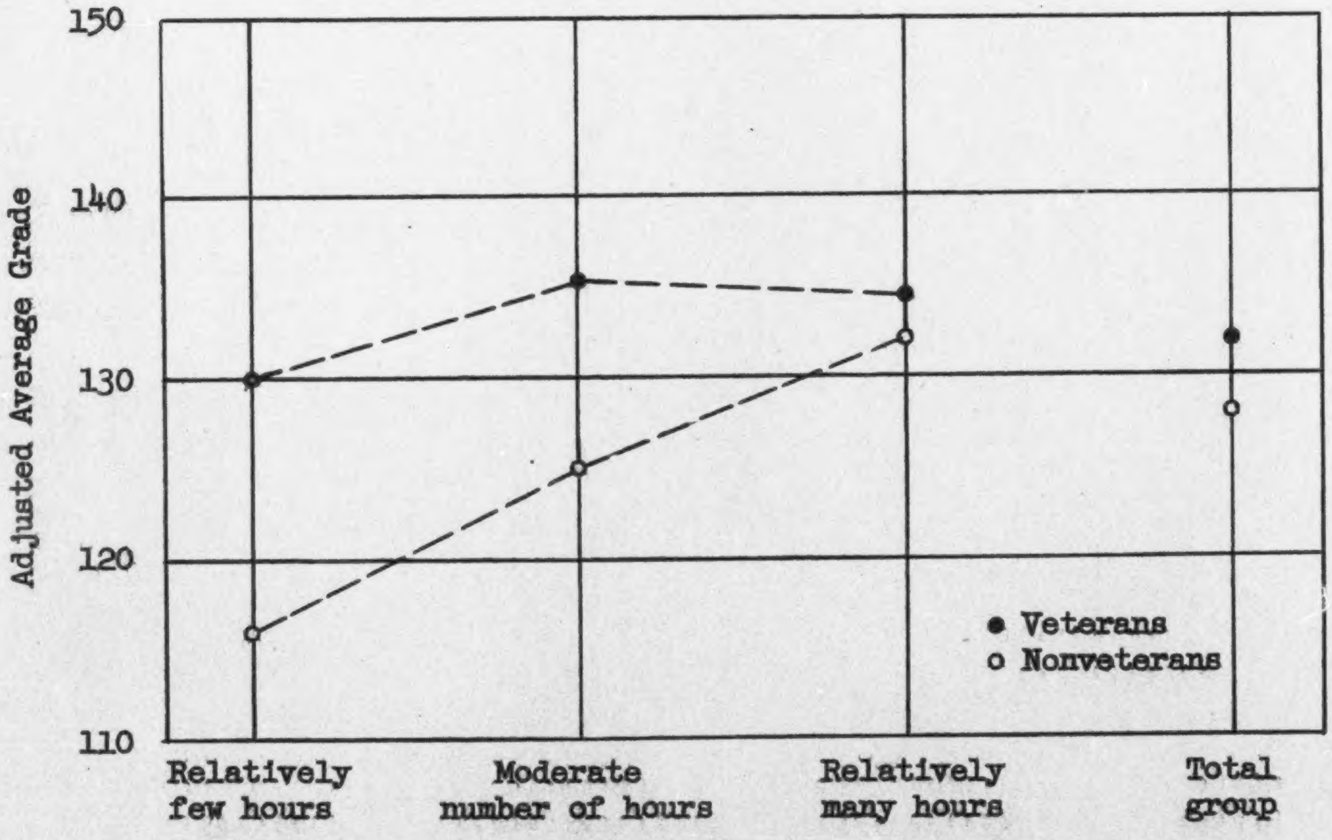
> Veteran students reported spending less time attending classes than did nonveterans; this presumably is a result of veterans being excused from the usual physical education or military science requirements. Considerably more time was generally spent in class meetings at engineering colleges than in liberal arts colleges. Students who spend more hours in class meetings (relative to their own college group) tend to earn higher AAG's than students who spend fewer hours in class.

Preliminary tabulations of the responses to this item showed that the colleges differed considerably with regard to the number of hours which students reported they spent attending classes and laboratories. In one engineering college (Midwest Tech), the median number of hours reported by nonveterans was almost 31, while in one of the liberal arts colleges (Taylor) the median for nonveterans was less than 15. It was impossible, for this reason, to use a three-category code which would be appropriate for all colleges. The solution was to choose a code for each college which was suitable for the range of responses there obtained. The generalized categories for number of hours in classes and laboratories may be described as follows: (A) relatively few, as compared to own college group; (B) moderate number, as compared to own college group; and (C) relatively many, as compared with own college group. The "own college group" of course includes both male veterans and male nonveterans. In the case of Midwest Tech engineering students, Category A represents less than 29 hours, B 29 to 31 hours, and C 32 or more hours; while for Taylor A represents less than 14 hours, B 14 to 16 hours, and C 17 or more hours. For these two extreme groups there is thus practically no overlap between the distributions.

Since the item categories are defined relative to the particular college group, Table 45 is included to show the median value, for each of the twenty-five groups, of the hours spent attending classes as reported by students. It is apparent from the table that engineering and agriculture students generally spent more hours in classrooms and laboratories than did liberal arts and business students; the reason undoubtedly is the greater amount of time spent in laboratory work by students in the applied science courses. It is also apparent that nonveterans consistently spent more time attending classes than did the veterans. In nineteen groups containing veteran and nonveteran freshmen, the median of nonveteran students is higher for all but Taylor; at Taylor, there is no difference. This finding agrees with the results reported in Chapter III for Douglas and Midwest Tech, where



MEDIAN HOURS PER WEEK FOR EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 48. HOURS PER WEEK SPENT ATTENDING CLASSES: ITEM 22(a)

TABLE 45. MEDIAN HOURS PER WEEK SPENT ATTENDING CLASSES, LABORATORIES, AND OTHER REGULARLY SCHEDULED COURSE CONFERENCES: ITEM 22(a)

College Group	Median Hours Per Week*		
	Male Veterans	Male Nonveterans	Females
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE			
1. Central State, Arts, 1946	16.9	20.9	19.2
2. Evans, Arts, 1946	15.4	17.6	17.6
3. Western State, Arts, 1946	15.7	18.0	17.9
4. Miller, Arts, 1946	17.0	19.8	17.8
5. Stewart, Arts, 1946	17.5	20.5	
6. Harris, Arts, 1946	16.5	18.9	18.6
7. Adams, Arts, 1946	19.4	20.7	
8. Douglas, Arts, 1946	19.8	20.4	18.7
9. Littletown State, Arts, 1946	19.2	21.6	19.3
10. Midwest City, Arts, 1946	16.6	19.4	
11. Eastern City, Arts, 1946	19.9	20.3	20.4
12. Taylor, Arts, 1945-46	14.9	14.9	14.7
13. Central State, Arts, 1945	17.9		
14. Midwest Tech., Engr., 1946	26.9	30.9	
15. Middle State, Engr., 1946	20.3	20.6	
16. Midwest City, Engr., 1946	27.3	28.2	
17. Southern Tech., Engr., 1945-46	25.8	30.0	
18. Midwest Tech., Agri., 1946	23.9	26.5	
19. Midwest State, Bus., 1946	17.3	20.1	
20. Littletown State, Bus., 1946	17.6	20.2	
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE			
21. Eastern City, Arts (MN-1945)	16.8	20.2	
22. Adams, Arts (MN-1945)	17.5	16.0	
23. Stewart, Arts (MN-1945)	15.8	16.5	
24. Midwest Tech., Engr. (MN-1939)	22.9		
25. Midwest Tech., Agri. (MN-1939)	23.9		

*In interpreting these figures it should be remembered that veteran students may have been exempted from physical education and military science courses which nonveteran students were required to take.

data on course load were obtained from transcripts of offical records. This difference between veterans and nonveterans in class and laboratory hours probably may be attributed to the exemption of veterans from the usual physical education or military science requirements.

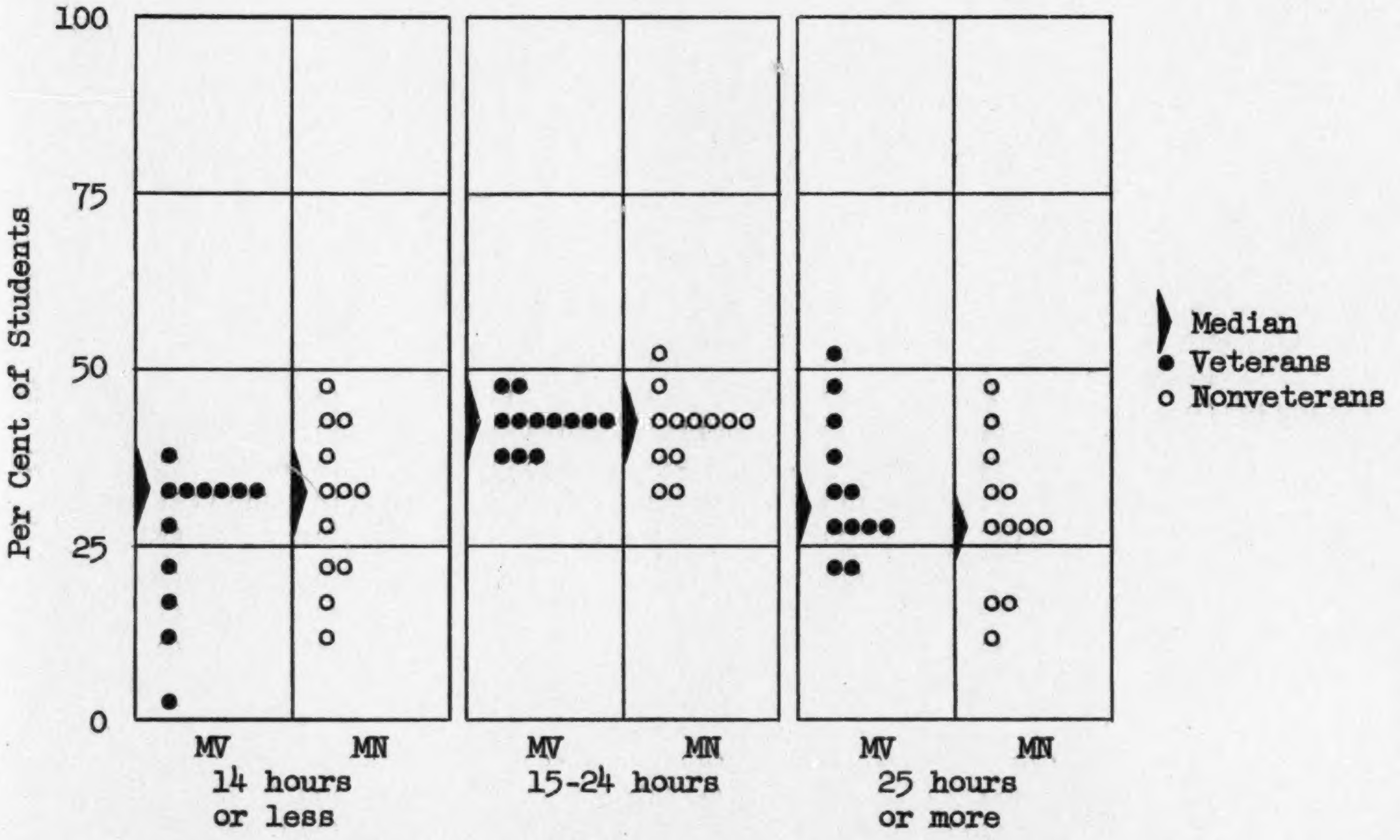
Female students tend to spend slightly less time in classrooms and laboratories than male nonveterans. Since all of the female groups were enrolled in Arts and Sciences, this difference may depend, in part, upon a tendency for them to avoid laboratory sciences, or to postpone taking them.

The over-all findings for this item are shown in Figure 48. It will be noted that median hours spent attending classes is shown in the upper part of the figure. The median of the median values is about 18 hours per week for veterans and over 20 hours for nonveterans.

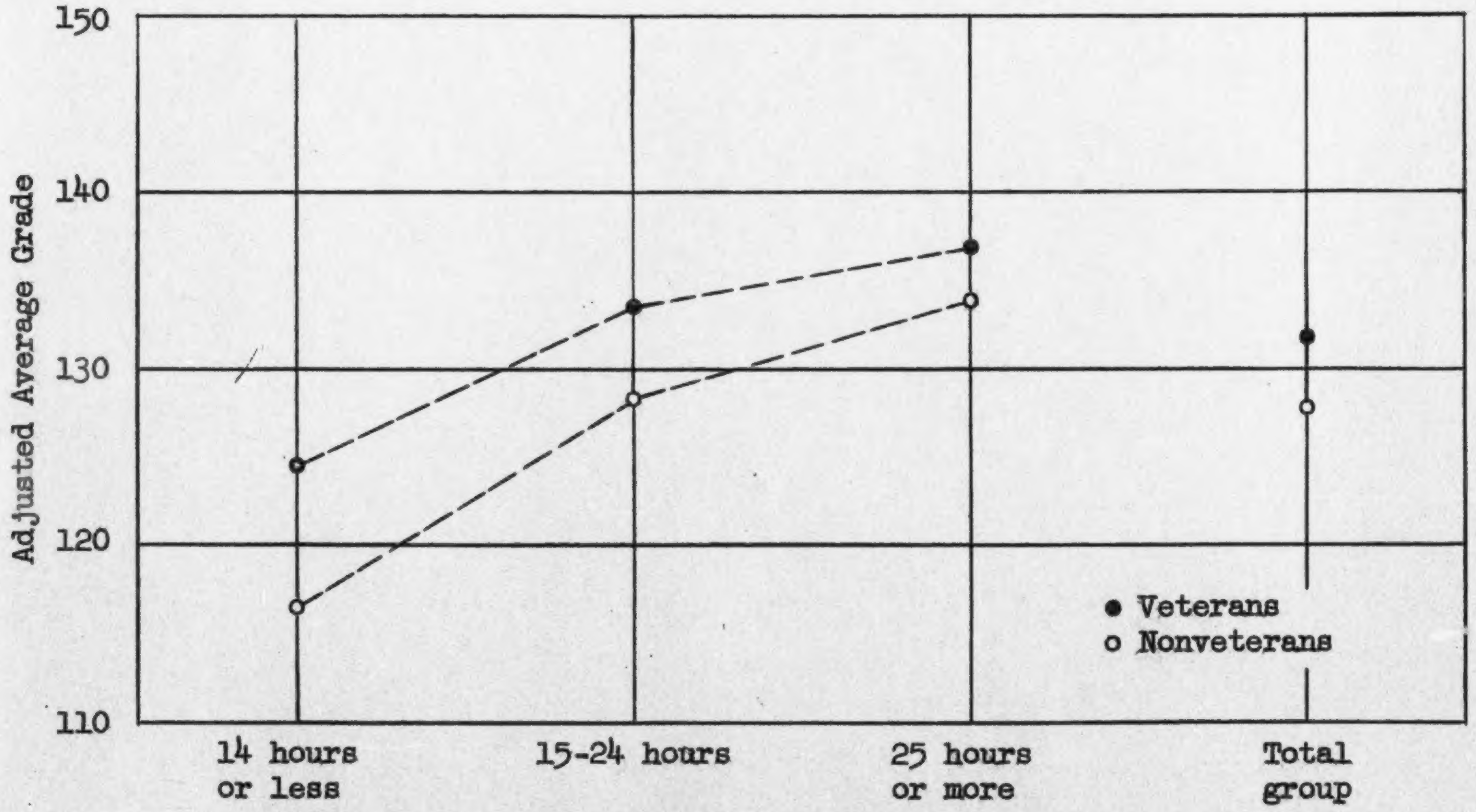
The lower portion of the figure shows the relation of time spent in classes to Adjusted Average Grade; but here the categories A, B, and C, defined in relation to the student's own college, are employed. There is a tendency, as shown by the median values of the mean AAG's, for higher achievement relative to ability to be associated with greater amount of time spent in classes. The difference between the median values for nonveterans spending relatively few and nonveterans spending relatively many hours in class is about 15; for veterans, however, the difference is only about 5 AAG units. Veterans spending relatively many hours in classes were significantly higher (at the 1% level) than other veterans in AAG only at Evans; for nonveterans a similar significant difference was found at Miller. In all twelve basic groups nonveterans in the "relatively many" category were superior to other nonveterans. The direction of the relationship is consistent with that found at Douglas and Midwest Tech, as reported in Chapter III, and is presumably due to a tendency for the best students to take heavier course loads.

Since nonveterans are found more often than veterans to possess the characteristic associated with high AAG--spending more time in classes and laboratories--one would expect nonveterans to excel in grades relative to ability, rather than veterans. Indeed, the sign test indicates that nonveterans show a greater tendency than veterans to choose responses associated with better-than-average AAG in ten instances out of eleven, with one tie. Statistically, this would be significant at the 1% level. Such reasoning may be fallacious in this instance, however, since the tendency for veterans to take lighter loads is presumably related to an entirely different set of factors than is the tendency for high-achieving students in general to take heavier loads or more laboratory courses. When account is taken of the different factors involved, it makes more plausible the hypothesis that veterans earn higher AAG's because of their lighter loads. Unfortunately a crucial test of the hypothesis is not available.

Studying. The activity listed in Item 22(b) is "studying in your room, the library, or elsewhere." The purpose of this item is, of course, to compare veteran and nonveteran students with respect to time spent in study and to observe the relationship of amount of study reported to AAG. The results are shown in Figure 49.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 49. HOURS PER WEEK SPENT STUDYING: ITEM 22(b)

> Veteran students were found to spend slightly more time in study than nonveterans. A greater number of hours devoted to study is associated with higher grades relative to ability.

Although there was considerable variation among colleges with respect to number of hours spent in studying, it was possible to use the same coding system for all groups. The categories employed were (A) 14 hours or less, (B) 15 to 24 hours, and (C) 25 hours or more. Nevertheless, in order to make the results more meaningful, the median number of hours spent in studying was determined for each of the twenty-five groups; these medians are shown in Table 46.

Comparison of male veteran and nonveteran students shows that the veteran students reported studying slightly more than the nonveterans. The median of the median values for veterans is slightly more than 20, while for nonveterans it is about 19. In nine of the twelve basic groups, the median number of study hours reported is greater for veterans than for nonveterans, and in one group there is no difference. There is relatively little difference between number of study hours reported by male nonveterans and by female students.

The lower portion of Figure 49 reveals a tendency for more study hours to be associated with higher grades relative to ability. The difference in median values of the mean AAG is roughly 15 points. Those who study 14 hours or less earn a mean AAG which is significantly lower (at the 1% level) than that of students studying more than 14 hours in three of the basic groups of veterans and also in three of the basic groups of nonveterans. Both for veteran and nonveteran students, in ten of the twelve groups, students who studied 25 hours or more earned higher AAG's than those who studied less than 25 hours per week.

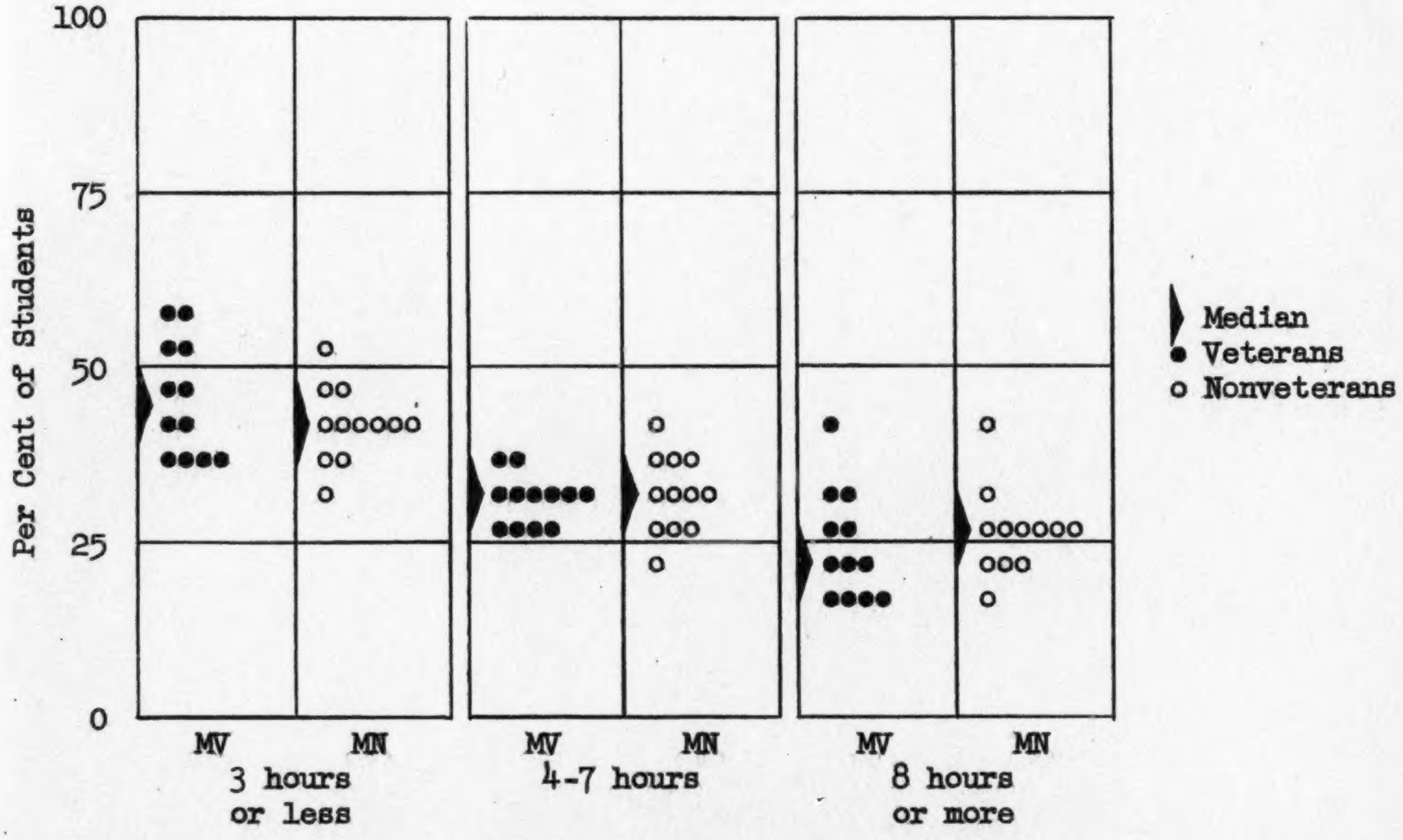
Since veterans, on the average, study more than nonveterans, and since there is some association between hours spent in study and Adjusted Average Grade, it would appear that this question might help to account for the veteran superiority in Adjusted Average Grade. The difference in study hours is so slight, however, that little weight can be given to this finding; the results of the sign test turn out not to be statistically significant.

Athletics. Item 22(c) pertains to the activity described in the questionnaire as "athletics and physical recreation (not counting physical education courses)." Since excessive participation in athletics is often supposed to be detrimental to good scholarship, the hypothesis to be tested is that a veteran-nonveteran difference in amount of participation might be responsible, in part, for differences in Adjusted Average Grade. The results are presented graphically in Figure 50.

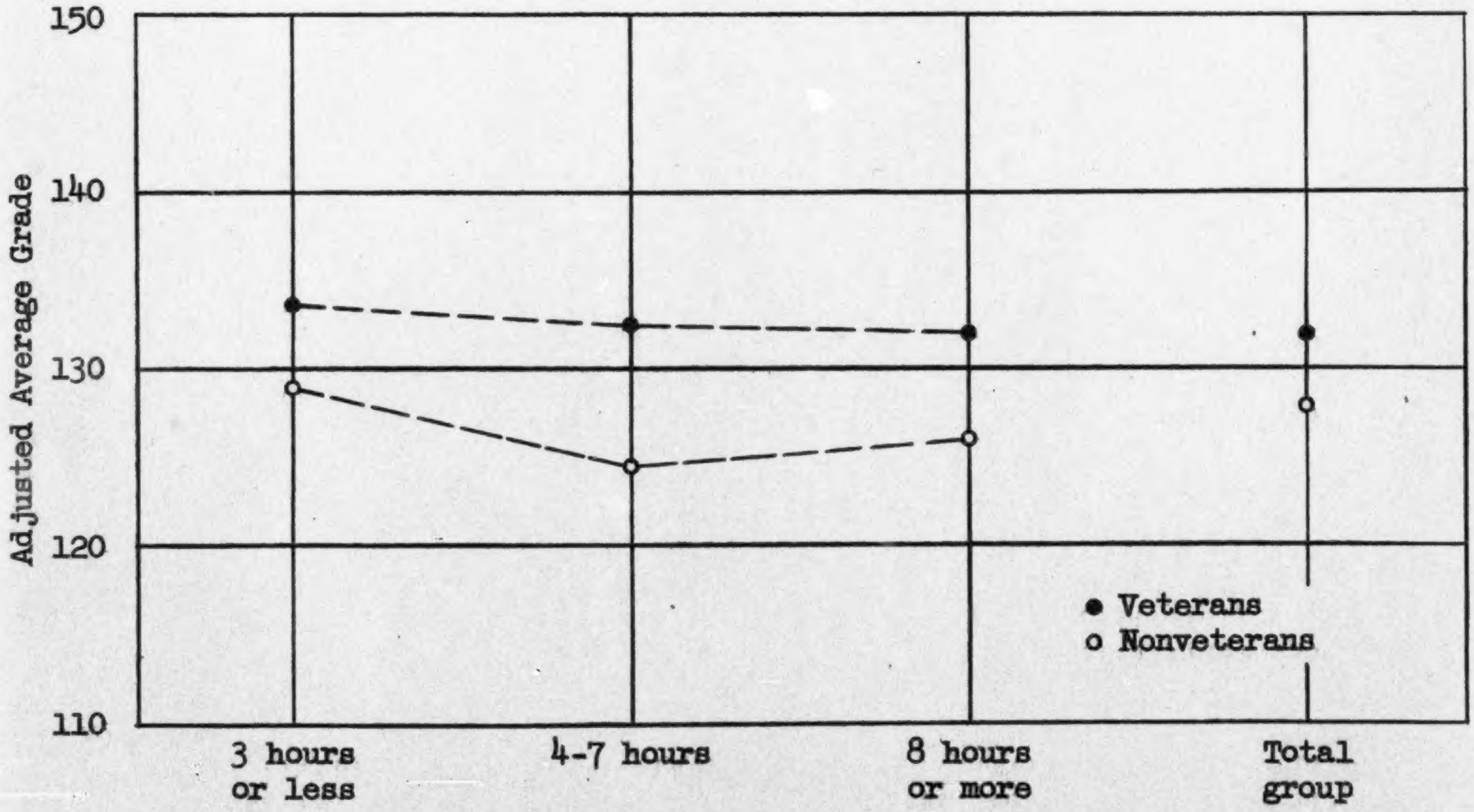
> A slight tendency was found for nonveterans to spend more time in athletic activities than veteran students. Women spent considerably less time in

TABLE 46. MEDIAN HOURS PER WEEK SPENT STUDYING IN ROOM, IN LIBRARY, OR ELSEWHERE: ITEM 22(b)

College Group	Median Hours Per Week		
	Male Veterans	Male Nonveterans	Females
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE			
1. Central State, Arts, 1946	17.5	16.5	14.7
2. Evans, Arts, 1946	20.4	18.7	18.5
3. Western State, Arts, 1946	21.1	19.1	22.0
4. Miller, Arts, 1946	19.1	16.3	13.5
5. Stewart, Arts, 1946	22.7	21.6	
6. Harris, Arts, 1946	25.6	22.7	23.1
7. Adams, Arts, 1946	23.5	23.5	
8. Douglas, Arts, 1946	19.0	19.9	18.7
9. Littletown State, Arts, 1946	18.7	18.8	21.3
10. Midwest City, Arts, 1946	14.0	16.8	
11. Eastern City, Arts, 1946	18.4	14.5	14.4
12. Taylor, Arts, 1945-46	25.8	26.3	24.2
13. Central State, Arts, 1945	18.6		
14. Midwest Tech., Engr., 1946	21.4	20.4	
15. Middle State, Engr., 1946	20.2	17.7	
16. Midwest City, Engr., 1946	19.0	15.1	
17. Southern Tech., Engr., 1945-46	17.5	14.2	
18. Midwest Tech., Agri., 1946	22.1	22.2	
19. Midwest State, Bus., 1946	17.2	12.7	
20. Littletown State, Bus., 1946	18.9	16.5	
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE			
21. Eastern City, Arts (MN-1945)	15.4	14.2	
22. Adams, Arts (MN-1945)	24.5	20.4	
23. Stewart, Arts (MN-1945)	23.5	20.2	
24. Midwest Tech., Engr. (MN-1939)	27.4		
25. Midwest Tech., Agri. (MN-1939)	18.7		



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 50. HOURS PER WEEK SPENT IN ATHLETICS: ITEM 22(c)

> athletics and physical recreation than male students. Amount of participation in athletics had essentially no relation to Adjusted Average Grade.

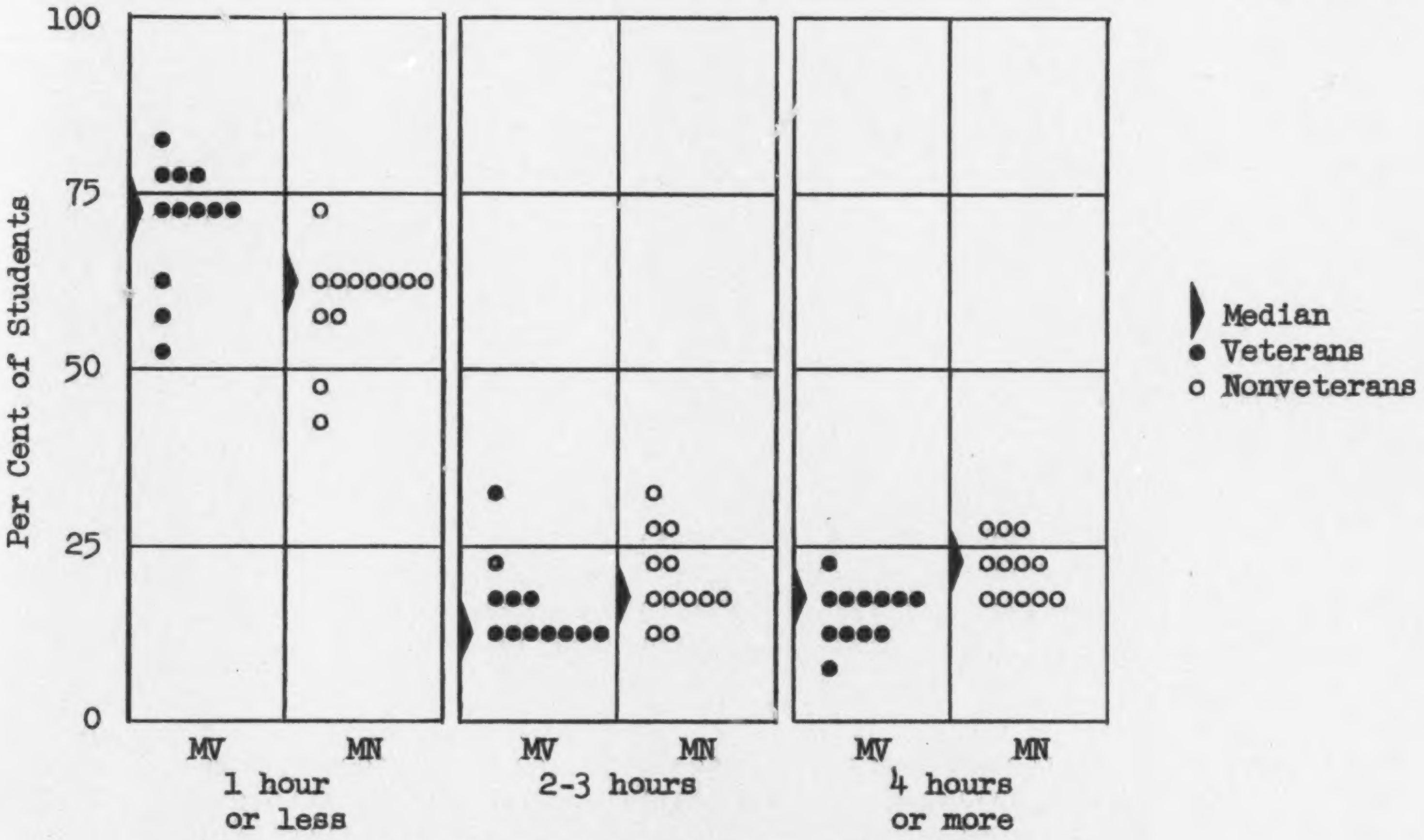
In coding the responses, the following categories were used: (A) 3 hours or less; (B) 4 to 7 hours; and (C) 8 hours or more. More than 40 per cent of the students, in the median group, reported three hours or less of athletic activity, while about 25 per cent spent eight hours or more. The median per cent in the "8 hours or more" category was about 5 per cent greater for nonveterans than for veterans. The amount of variability among colleges does not appear to be large. As would be expected, women students generally spent much less time in physical recreation than men; in the median group (from the nine colleges where women's questionnaires were analyzed), only 8 per cent reported spending eight hours or more in athletics. It may be appropriate to recall that the questionnaire was administered in the spring; different results might be obtained from questionnaires filled out at some other time of the year.

The relationship of amount of athletic activity to AAG is very slight. The difference between the median of the mean AAG values for the extreme categories amounts to no more than 3 points. In only one of the basic groups was a category mean AAG found to be significant at the 1% level: nonveteran students at Littletown State who were in the middle category were found to be significantly low. The hypothesis that a considerable amount of participation in athletics is detrimental to scholarship is not borne out by these findings; different results might, of course, be obtained from questionnaires administered, say, in the fall term. Because of the lack of relationship to AAG, obviously this item cannot account for the superiority of veteran students.

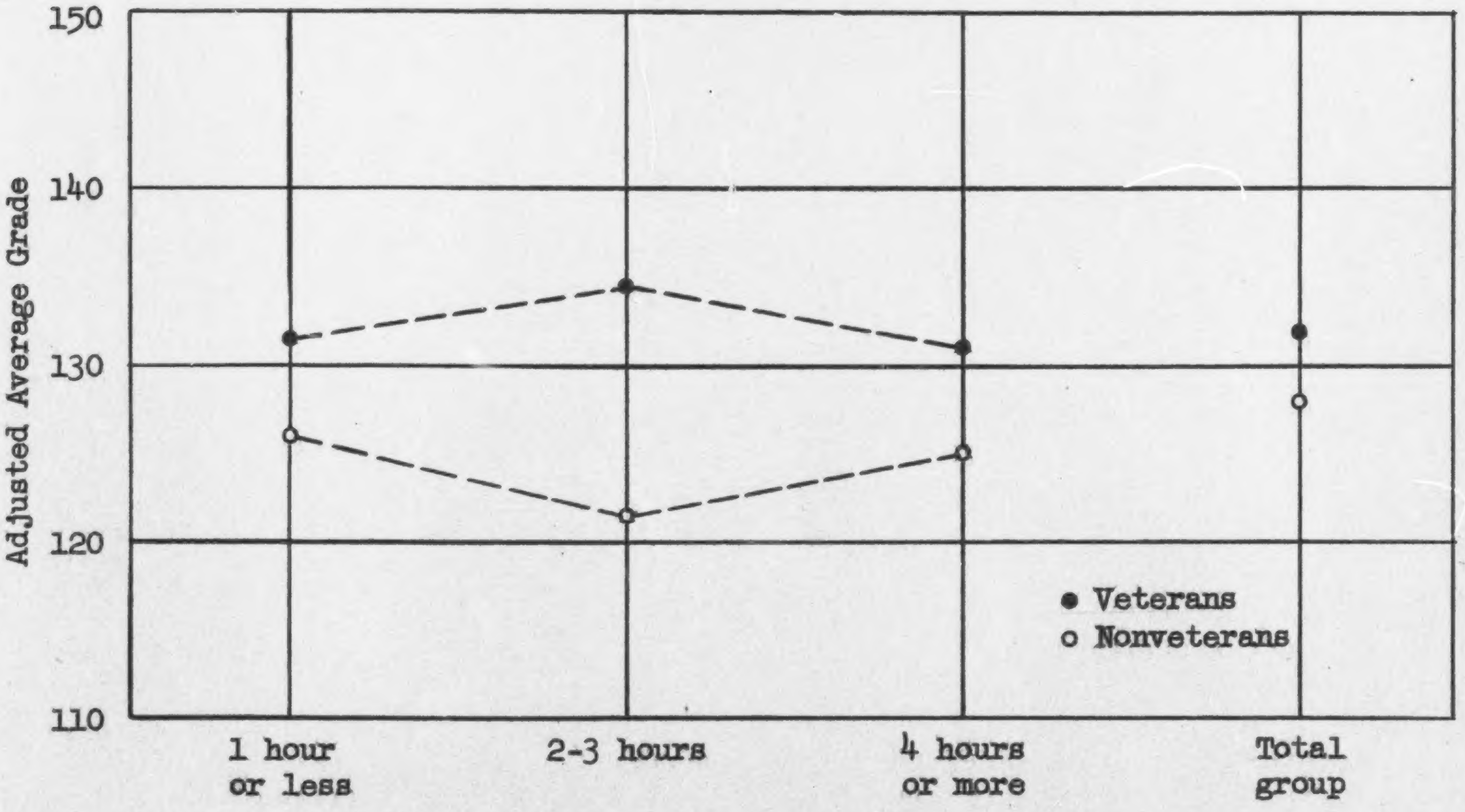
Extracurricular Activities. Another type of activity which is of interest from the standpoint of possible veteran-nonveteran differences is participation in extracurricular activities. In Item 22(d) of the questionnaire they were described as "other organized extracurricular activities (except social affairs)." The results of the analysis of this item are shown in Figure 51.

> Nonveteran male students consistently reported spending more time in extracurricular activities than veterans, and women spent more time than nonveteran males in this type of activity. Amount of participation was unrelated to grades relative to ability.

In coding Item 22(d), the following categories were used: (A) 1 hour or less, (B) 2 to 3 hours, and (C) 4 hours or more. The amount of time spent in extracurricular activities, as defined in Item 22(d), appears to be rather small. More than 60 per cent of the nonveterans and 70 per cent of the veterans, in a typical group, spent one hour or less per week in extracurricular endeavors, while only about 20 per cent of nonveterans and 15 per cent of the veterans spent more than three hours in such activity.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 51. HOURS PER WEEK SPENT IN ORGANIZED EXTRACURRICULAR ACTIVITIES: ITEM 22(d)

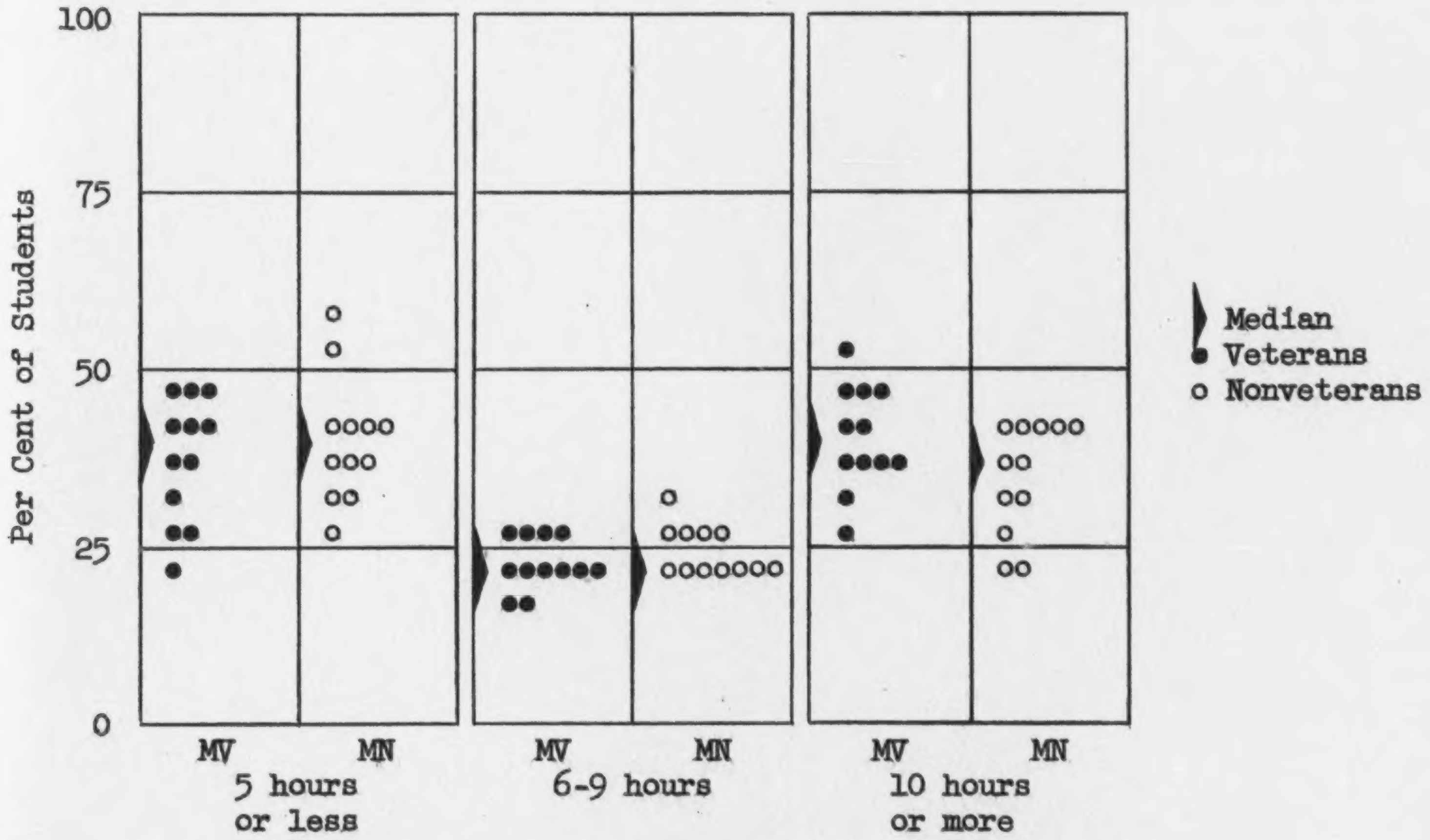
There is little doubt that greater participation is characteristic of nonveterans, however; in eleven of the twelve basic groups a larger proportion of nonveterans than of veterans spent more than three hours per week in extracurricular activities, and in the twelfth group there was no difference. Such consistency in the direction of the results would be expected to occur by chance less than once in a hundred times. Women report a still greater amount of extracurricular participation than nonveterans; considering only the nine groups for which women were studied, the median percentage in the "4 hours or more" category is 20 for male nonveterans and almost 30 for women.

The lower portion of Figure 51 shows that amount of participation in extracurricular activities has no consistent relation with Adjusted Average Grade. The median values of the mean AAG are almost identical for the extreme categories. The suggestion from the figure that a moderate amount of participation is good for veterans and bad for nonveterans doesn't make psychological sense, and probably results from chance fluctuations. In only one case was a category mean AAG significant at the 1% level, and it is inconsistent with the above interpretation: nonveterans at Adams in the middle category were found to be significantly superior in mean AAG to students who spent a greater or less amount of time in extracurricular activities. It must be concluded that this item is unrelated to AAG, and therefore the superiority of veterans in grades relative to ability cannot be explained on the basis of amount of participation in extracurricular activities.

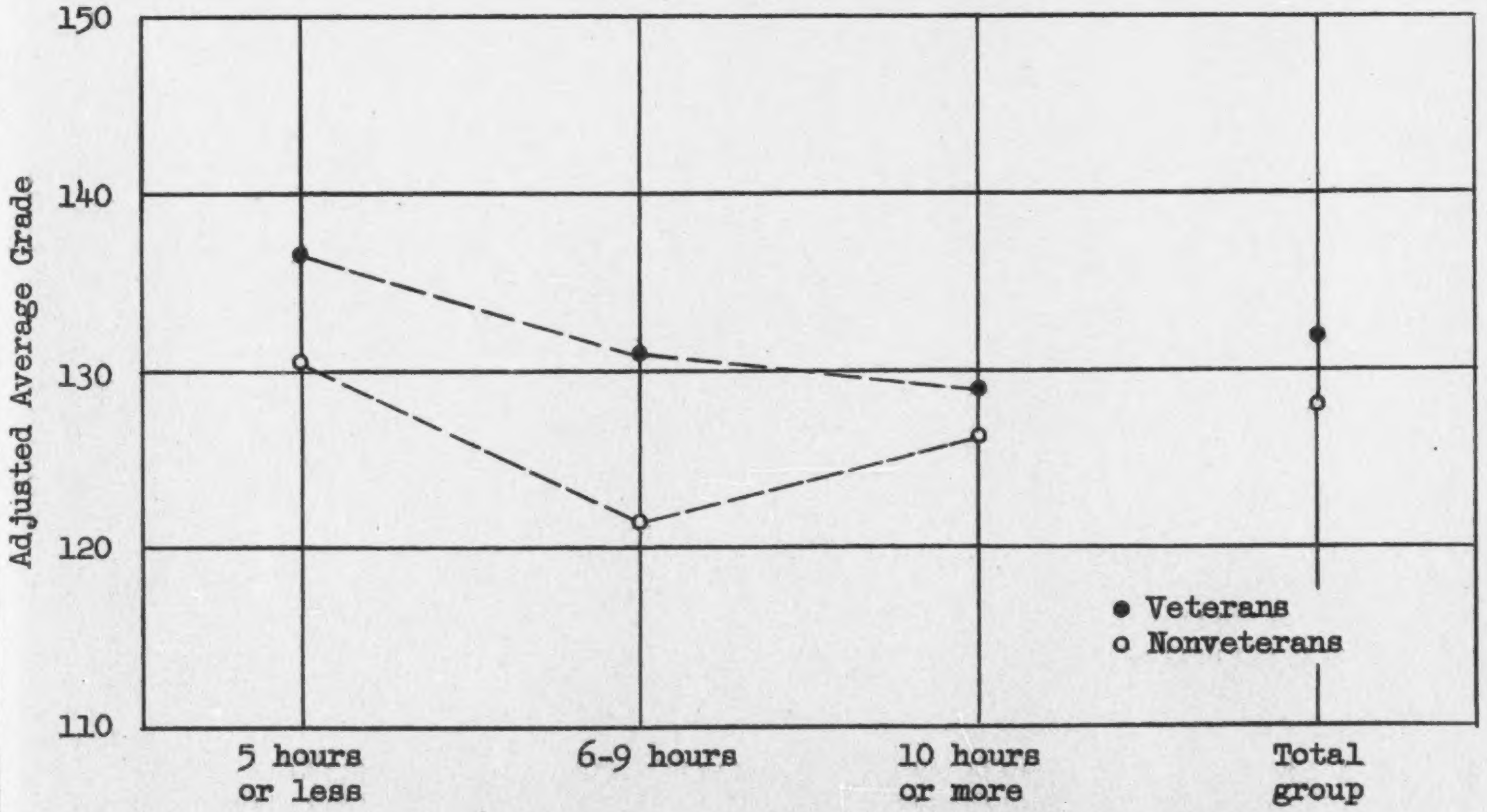
Social Activities. It might be supposed that nonveteran students would be more inclined than veterans to engage in social activities and that greater participation in such activities would be associated with underachievement. Such a hypothesis was tested by the analysis of Item 22(e); the activity was defined as "social activities and recreation--dates, parties, movies, etc." Three categories were employed in the analysis: (A) 5 hours or less, (B) 6 to 9 hours, and (C) 10 hours or more. The results are shown in Figure 52.

> Essentially no difference was found between veteran and nonveteran male students in hours per week spent in social activities. Women students reported spending considerably more time than men in such activities. There was a slight and generally insignificant tendency for the least amount of social participation to be associated with higher Adjusted Average Grade.

Inspection of the arrowheads representing the median percentage values indicates that veteran and nonveteran male students were essentially alike with regard to time spent in social affairs. Although the median is slightly higher for veterans in the 10-hours-or-more category, the proportion is higher for veterans in only eight of the twelve basic groups, and for other item categories no consistent trend is found. About 40 per cent of the male students spent 5 hours or less, and about the same proportion spent 10 hours



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 52. HOURS PER WEEK SPENT IN SOCIAL ACTIVITIES: ITEM 22(e)

or more on dates, parties, movies, and the like. Colleges vary considerably, however. The men's colleges (Adams and Stewart) tended to be low in amount of time spent in social activities, presumably because they are not coeducational institutions; Douglas and Littletown State are among the coeducational colleges where students reported spending the greatest amount of time in social affairs.

Women reported considerably more time spent in social activities than did the men. Considering only the nine groups containing results for women, the median percentage for men in the 10-hours-or-more category is about 40, and for women it is over 60.

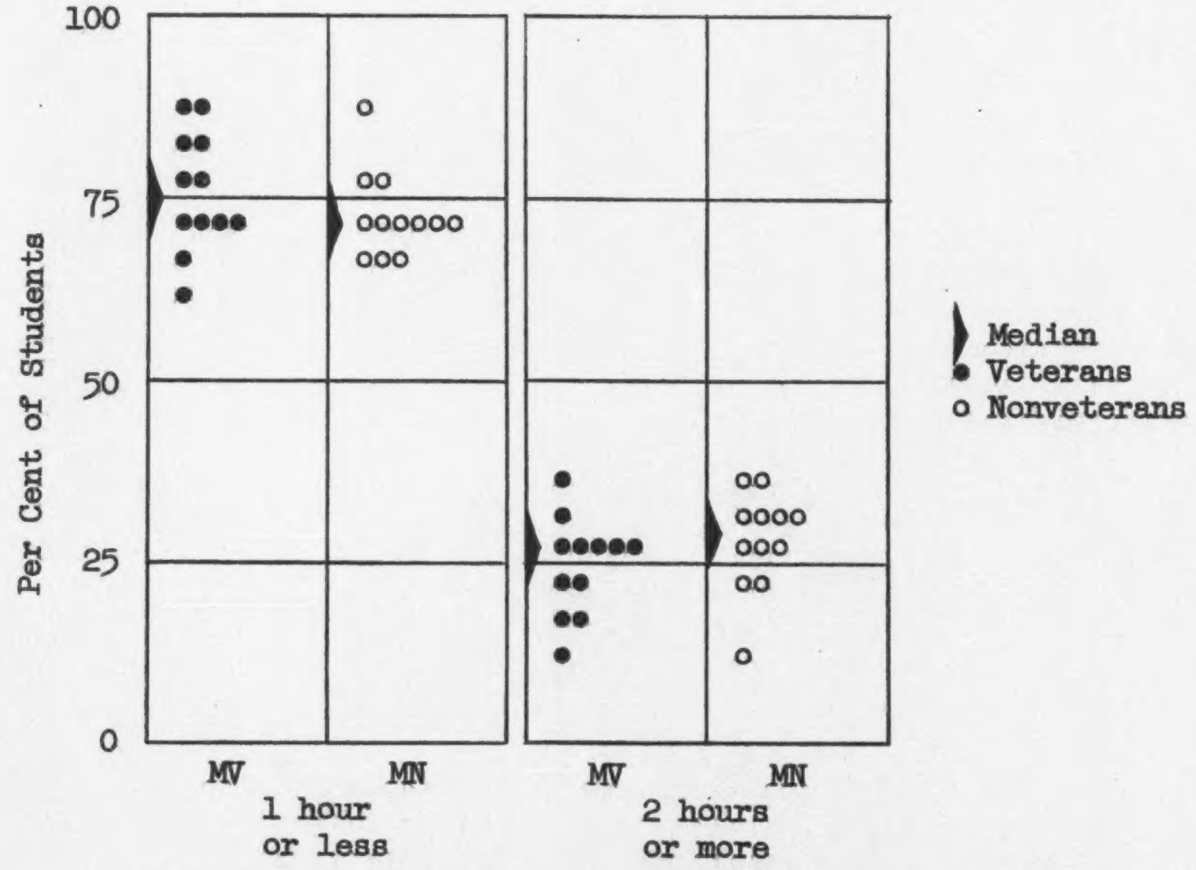
Again referring to Figure 52, it appears that the relationship between hours per week spent in social activities and AAG is slight. Higher AAG is associated to some extent with less social participation; it will be recalled that high AAG was also associated with a tendency to worry about getting to know people socially. Among the twelve basic groups, the relationship was found to be significant (at the 1% level) only at Adams.

In view of the great similarity between veterans and nonveterans in amount of social activity and the lack of a marked correlation with AAG, the tendency for veterans to excel in grades relative to ability obviously cannot be a function of amount of participation in social activities.

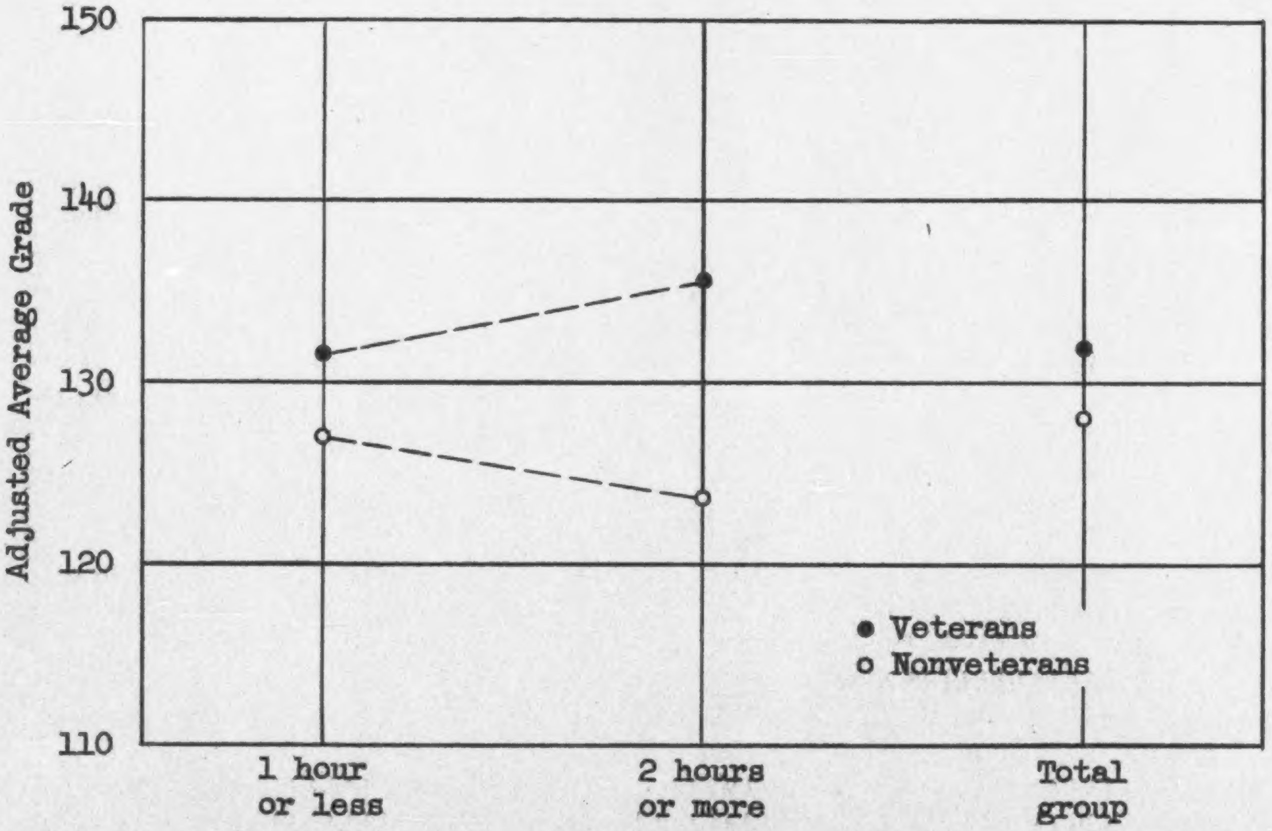
Attending Lectures and Concerts. Item 22(f) was "attending public lectures, concerts, and other cultural activities." This activity was included because it was felt that attendance at such meetings might be symptomatic of interest in scholarly pursuits. The categories used in the analysis are (A) 1 hour or less and (B) 2 hours or more. The results of the analysis of this item are shown in Figure 53.

> About one fourth of the male students reported spending two hours or more per week attending lectures and concerts; there was a slight tendency for nonveterans to attend more often than veterans. A higher proportion of women than men spent two hours or more per week in such activity. Amount of attendance at lectures and concerts is unrelated to Adjusted Average Grade.

In ten of the twelve basic groups, the proportion of nonveterans in the 2-hours-or-more category was greater than the proportion of veterans; so nonveterans apparently did attend lectures and concerts more often than veterans. The amount of the difference is small, however; the difference between the median percentages is less than five. Almost three fourths of the students, in the median group, reported spending one hour or less per week attending lectures and concerts. Of the twelve basic groups, Stewart and Littletown State students reported the greatest amount of attendance. Taylor students, however, were far ahead of all others in this respect; half of its students reported spending two hours or more per week in attendance at lectures or concerts.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 53. HOURS PER WEEK SPENT ATTENDING PUBLIC LECTURES, CONCERTS, AND OTHER CULTURAL ACTIVITIES: ITEM 22(f)

The sex difference is found to be much greater than the veteran-nonveteran difference. Considering only the nine groups where women's questionnaires were analyzed, 30 per cent of the male nonveterans and 40 per cent of the women, in the median group, spent two hours or more per week attending lectures and concerts.

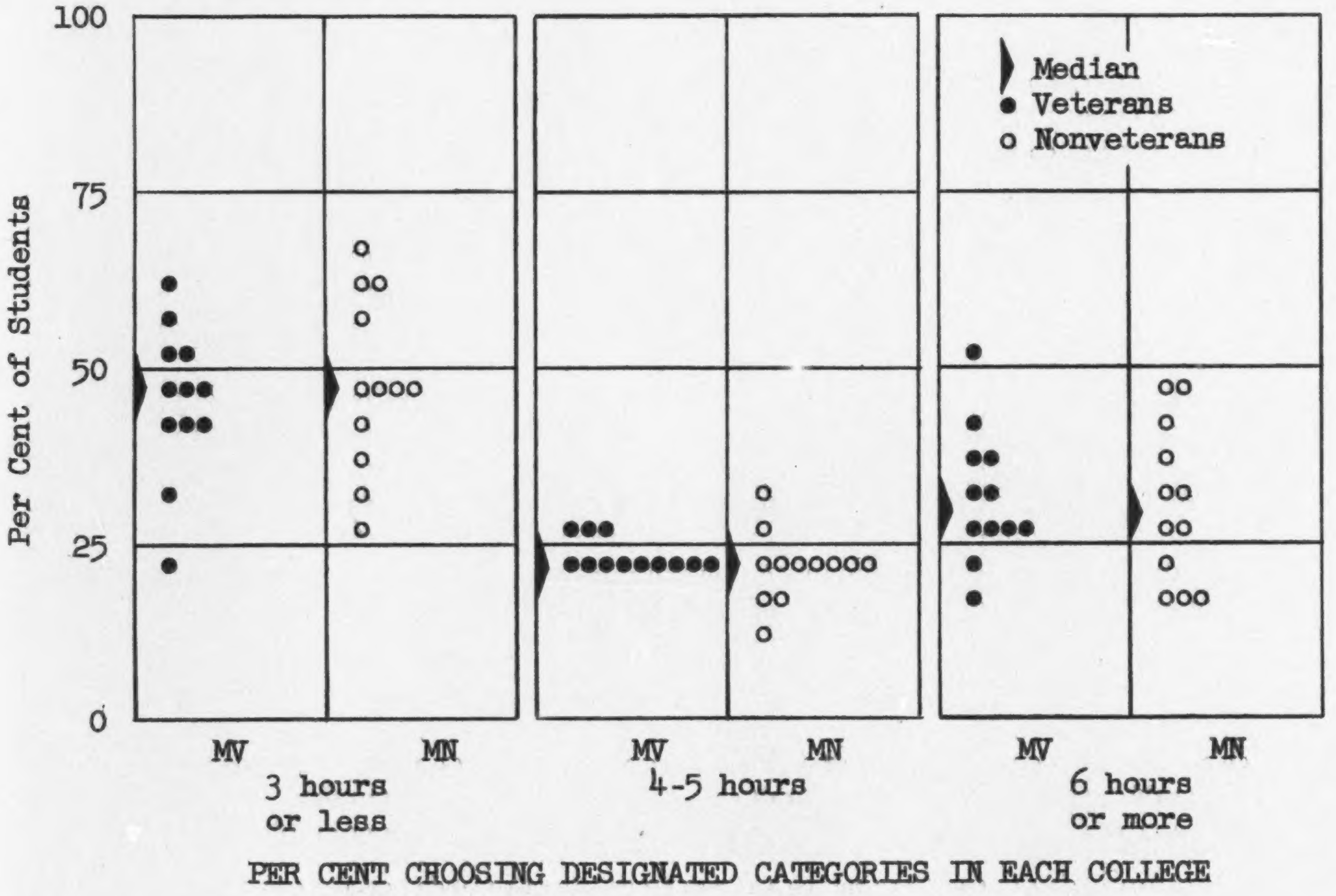
Attending lectures, concerts, and other cultural activities may or may not be an indication of academic interest, but it is of no value in predicting grades. In none of the twelve basic groups was a significant difference found, even at the 5% level, in the mean AAG's of students in the two questionnaire categories. In the absence of a relationship between the item and AAG, the item of course cannot help to account for the veteran-nonveteran difference in AAG.

Bull Sessions. The activity listed as Item 22(g) was "bull sessions," a type of social phenomenon which is particularly characteristic of college students. The purpose of the item was to determine whether or not veterans spent less time than nonveterans in this type of social activity, and to discover the relation of amount of time spent in bull sessions to Adjusted Average Grade. The three categories employed were (A) 3 hours or less, (B) 4 to 5 hours, and (C) 6 hours or more. The graphic presentation of the findings may be found in Figure 54.

> Bull sessions occupied four or more hours per week for more than half of the male students in a typical college group. Veterans appear to be remarkably like nonveterans in amount of time devoted to this type of social behavior. Women students engaged in bull sessions about as much as the men, according to their reports. Although the relationship between amount of time spent in bull sessions and Adjusted Average Grade is slight, there is some evidence that a moderate amount of time spent in this activity is favorable to higher achievement relative to ability.

The positions of the arrowheads in Figure 54 which indicate the median percentages show that veteran and nonveteran students are very similar with respect to amount of time spent in bull sessions. In the median group, almost 50 per cent reported spending three hours or less and about 30 per cent said they spent six hours or more. Engineering students tended to spend less time in bull sessions than the liberal arts students, perhaps because a greater proportion of their time is occupied with laboratories and other class meetings. Women students reported about the same amount of time spent in bull sessions as did the men. Students at Stewart seem to be particularly addicted to bull sessions: about half of the students reported spending six or more hours per week in this activity.

The median values of the mean AAG's, plotted in the lower half of the table, seem to show a slight tendency for a moderate amount of time spent in bull sessions to be associated with higher grades relative to ability. Although the differences are very slight, two of the Category B mean AAG's



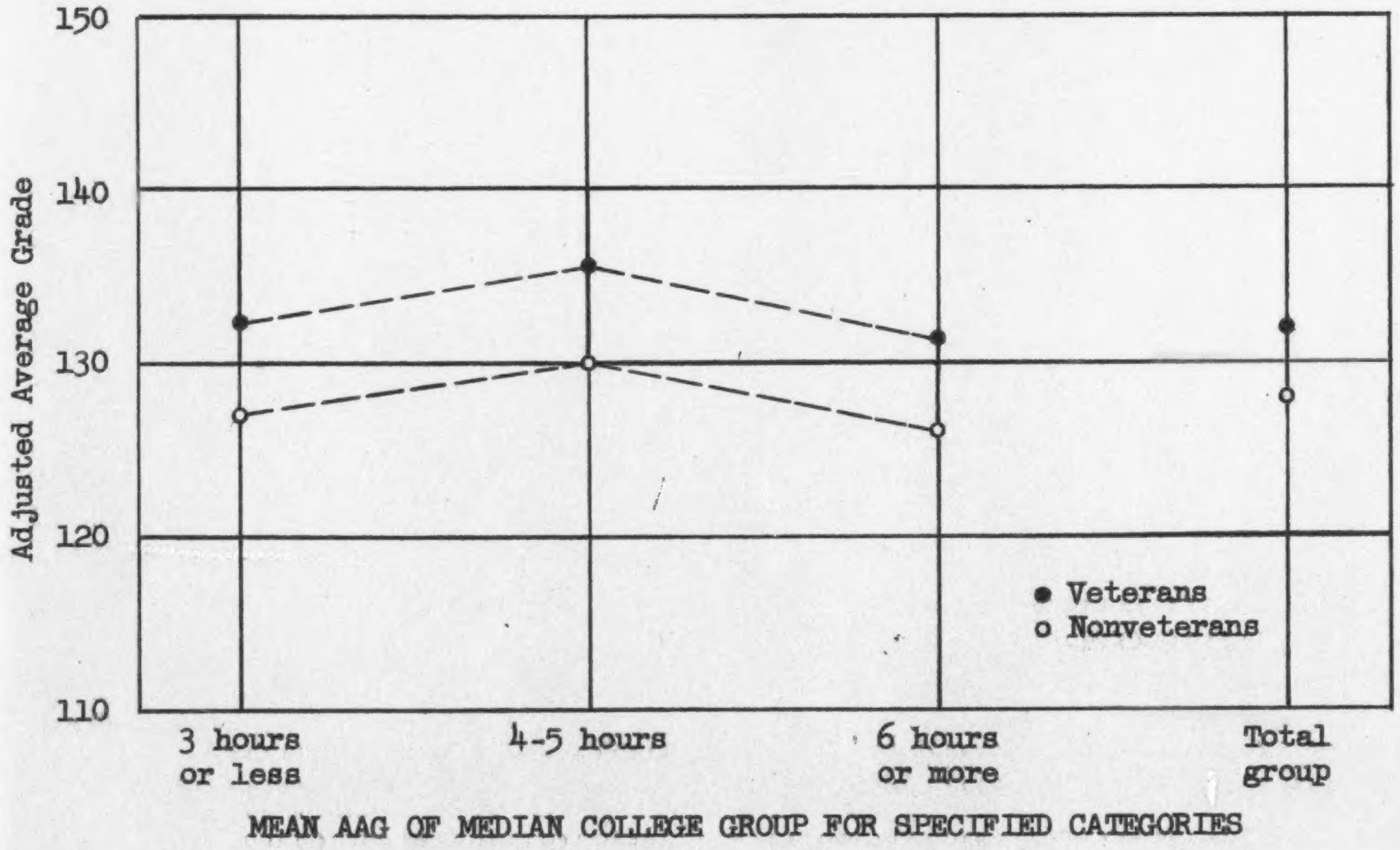


FIGURE 54. HOURS PER WEEK SPENT IN BULL SESSIONS: ITEM 22(g)

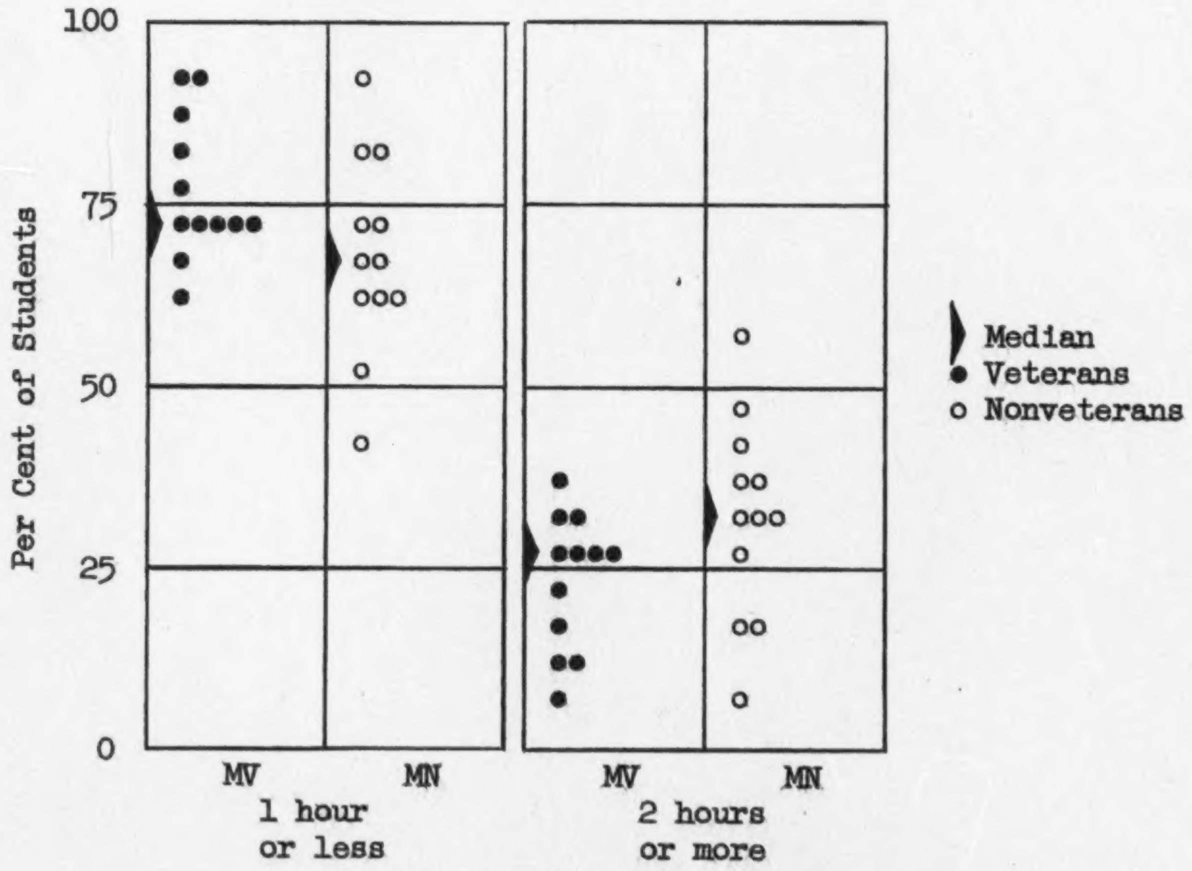
(those for nonveterans at Miller and Eastern City) are significantly greater (at the 1% level) than the means for students in other categories. In ten of the twelve basic groups of nonveterans the students in the middle category earned higher AAG's on the average than students in the two extreme categories; obtaining ten out of twelve differences in one direction is significant at the 5% level. For veterans, no significant mean AAG values were found; veterans in the middle category were superior in nine of the twelve basic groups. It appears that at least for nonveterans a moderate amount of time spent in bull sessions is associated with higher achievement relative to ability.

Paid Employment. Part-time employment is a factor which might be expected on logical grounds to interfere with successful academic work, taking as it does hours which might otherwise be devoted to study. Because of the difference between veterans and nonveterans in subsidies through the GI Bill, it might also be supposed that nonveterans would need part-time employment more often than veterans. If both of these hypotheses are true, one would expect veterans to earn higher grades, relative to ability, than nonveterans. It is the purpose of Item 22(h) to test both hypotheses.

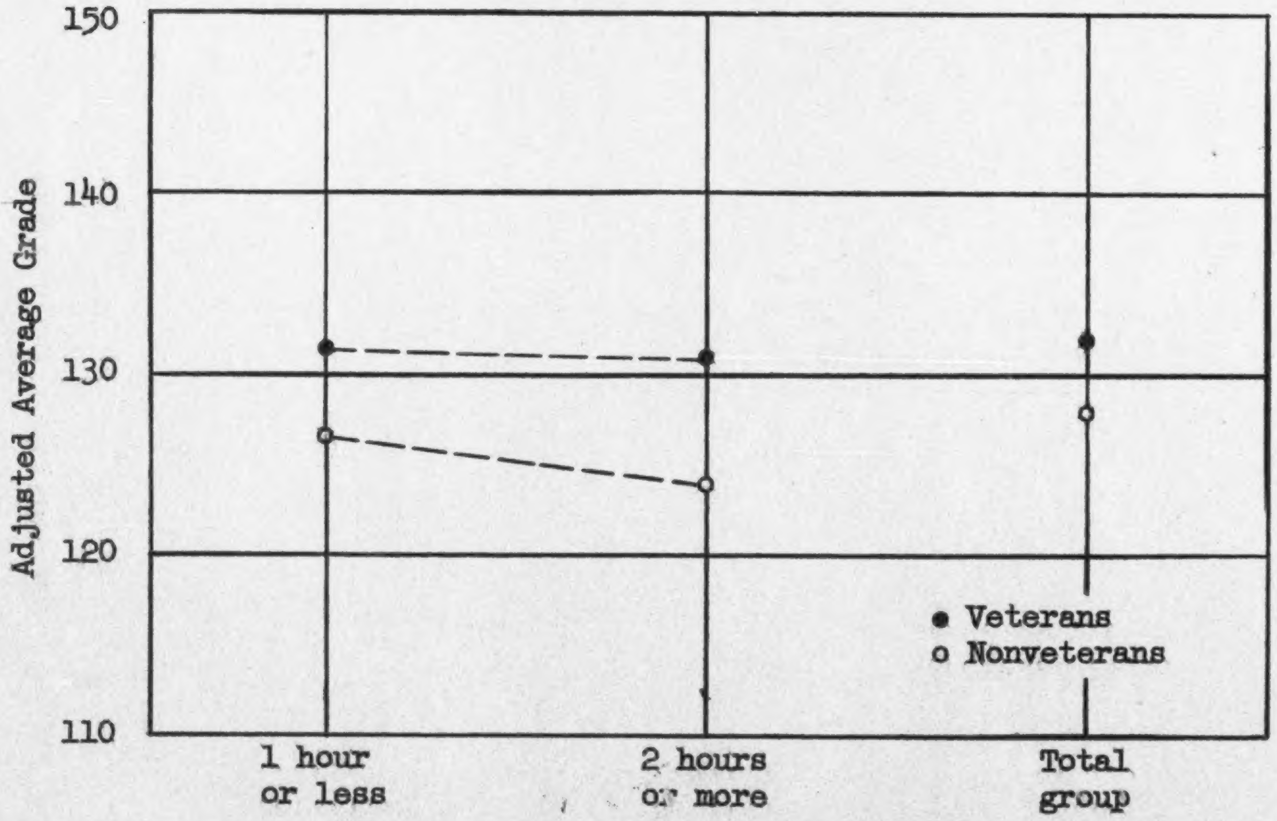
The statement of the activity was "paid employment." Two categories were employed in the analysis: (A) 1 hour or less, and (B) 2 hours or more. The results of the analysis are shown graphically in Figure 55.

> Colleges vary considerably in amount of time spent in paid employment by their students; in the median group, almost a third worked two hours or more per week. Somewhat fewer veterans than nonveterans reported two hours or more per week in paid employment. Women students reported less time spent in paid employment than men. Hours of paid employment has little relation to Adjusted Average Grade, although there is a slight tendency among nonveterans for those students who work most to earn lower grades relative to ability.

The amount of variability among the twelve basic groups may be shown by one or two examples. Students at Evans most frequently reported working two or more hours per week, the percentages being 36 for veterans and 57 for nonveterans. On the other hand, only 8 per cent of veterans at Adams and 7 per cent of nonveterans at Douglas were in this category. As implied by these examples, the variability among colleges is somewhat greater for nonveterans than for veterans, which is reasonable in the light of the subsidies provided veterans by the GI Bill. Nonveterans in the two-hours-or-more category were more frequent than veterans; the percentage was higher in ten of the twelve groups, with one tie. The difference between the median groups is, however, less than 10 per cent. Women students were less likely to be employed part-time than the men; only at Taylor, where 40 per cent of the women students said they worked two hours or more, does the proportion of women in Category B exceed that of the male nonveterans.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 55. HOURS PER WEEK SPENT IN PAID EMPLOYMENT: ITEM 22(h)

The median values of the mean AAG's, shown in the lower portion of Figure 55, show only a very slight relationship between hours spent in paid employment and Adjusted Average Grade. There is practically no difference between the two medians for veterans, but for nonveterans there is a slight tendency for greater time spent in paid employment to be associated with lower AAG. In eight of the twelve groups of nonveterans, the mean AAG for those working two hours or more is lower than that for those working one hour or less, and in two groups there is no difference. At Midwest City the mean AAG is significantly lower (at the 1% level) for nonveterans who worked most. However, in another instance, at Adams, nonveterans who worked two or more hours per week were significantly higher in mean AAG than those who worked one hour or less. It must be concluded that the relationship is slight at best, and amount of paid employment cannot be considered an important factor in accounting for the general superiority of veterans in grades relative to ability.

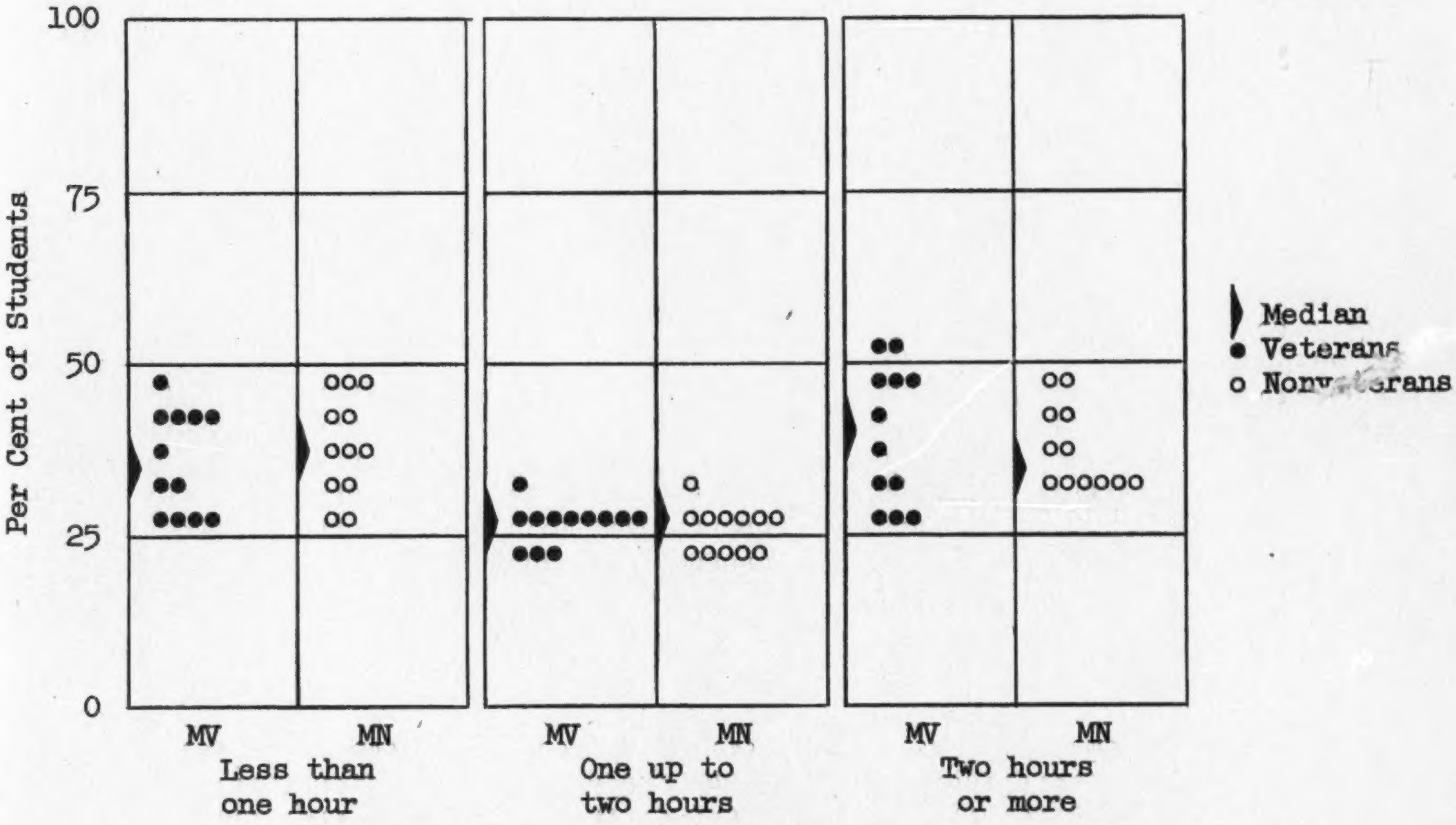
Other Non-Routine Activities. The final item in the list of activities, included as Item 22(i), is "other non-routine activities." The categories used in the analysis were (A) 1 hour or less and (B) 2 hours or more. The findings are shown only in Appendix Table 22(i).

> About one fourth of the students reported spending two hours or more in non-routine activities, and there was little difference between veteran and nonveteran students. Amount of time reported as spent in "non-routine activities" bears no significant relation to Adjusted Average Grade.

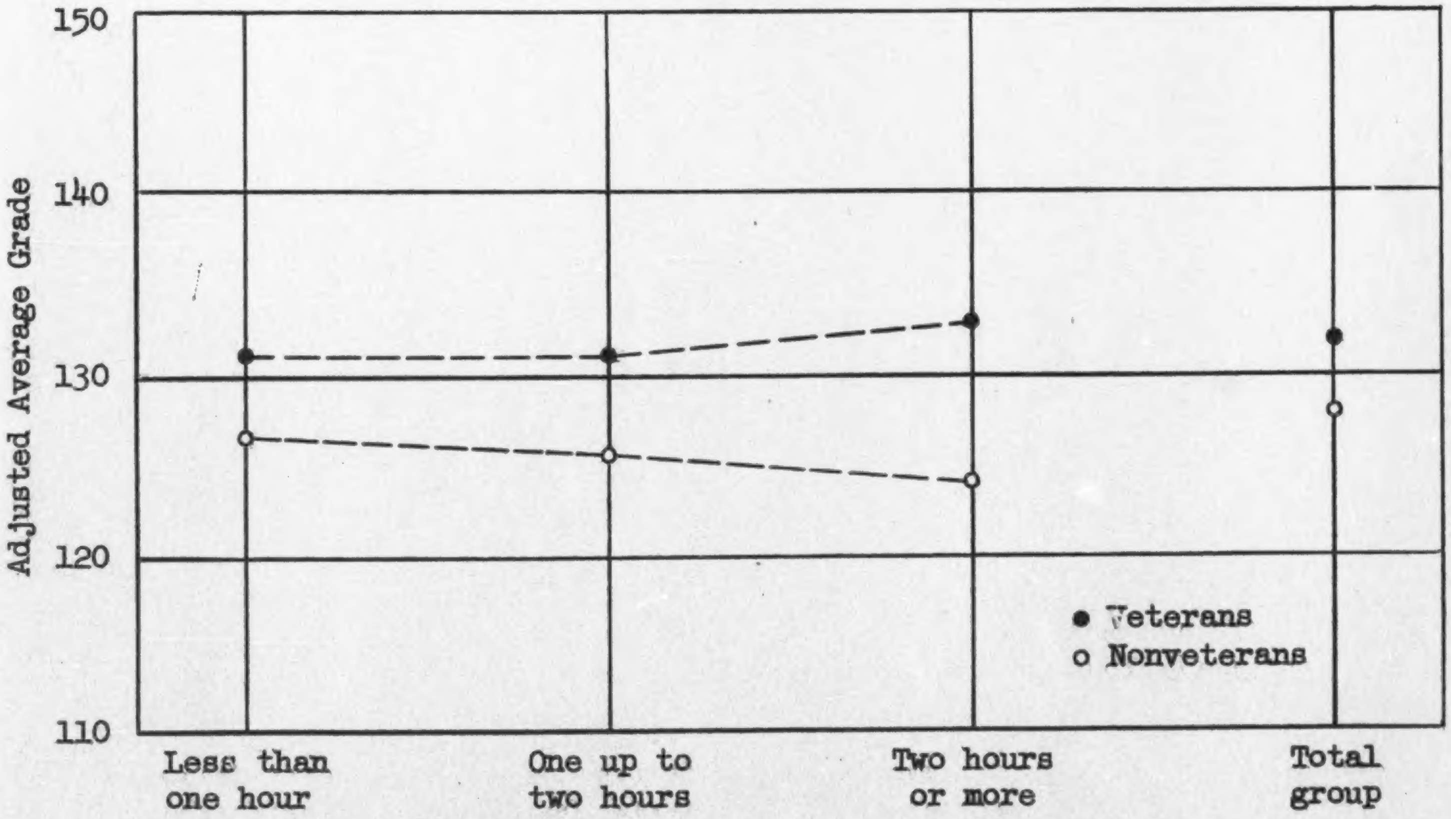
Unrequired Academic Pursuits

In addition to the various parts of Item 22, which required the student to indicate how he spent his time in a typical week, two other items were included which it was hoped would give indications of academic interest. These items pertained to scholastic activities not required as preparation for any course assignments. The hypothesis to be tested is that veterans show, by voluntary participation in intellectual activities, a more genuine scholastic interest than nonveterans, and that this interest is reflected in higher grades relative to ability.

Voluntary Reading and Study. The first of these questions, included as Item 24, was, "About how many hours did you spend during the past seven days in reading or studying materials which are related to courses you are taking but which are not a part of course requirements?" The categories used in the analysis were (A) less than one hour, (B) one hour up to two hours, and (C) two hours or more. The results of the analysis are shown in Figure 56.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 56. HOURS PER WEEK SPENT IN VOLUNTARY READING AND STUDY: ITEM 24

> More than 60 per cent of the students spent fewer than two hours per week in unrequired study. Veterans participated in such study more than nonveterans to a very slight extent, and nonveterans more than women. Amount of reading or study not required for any course is unrelated to Adjusted Average Grade.

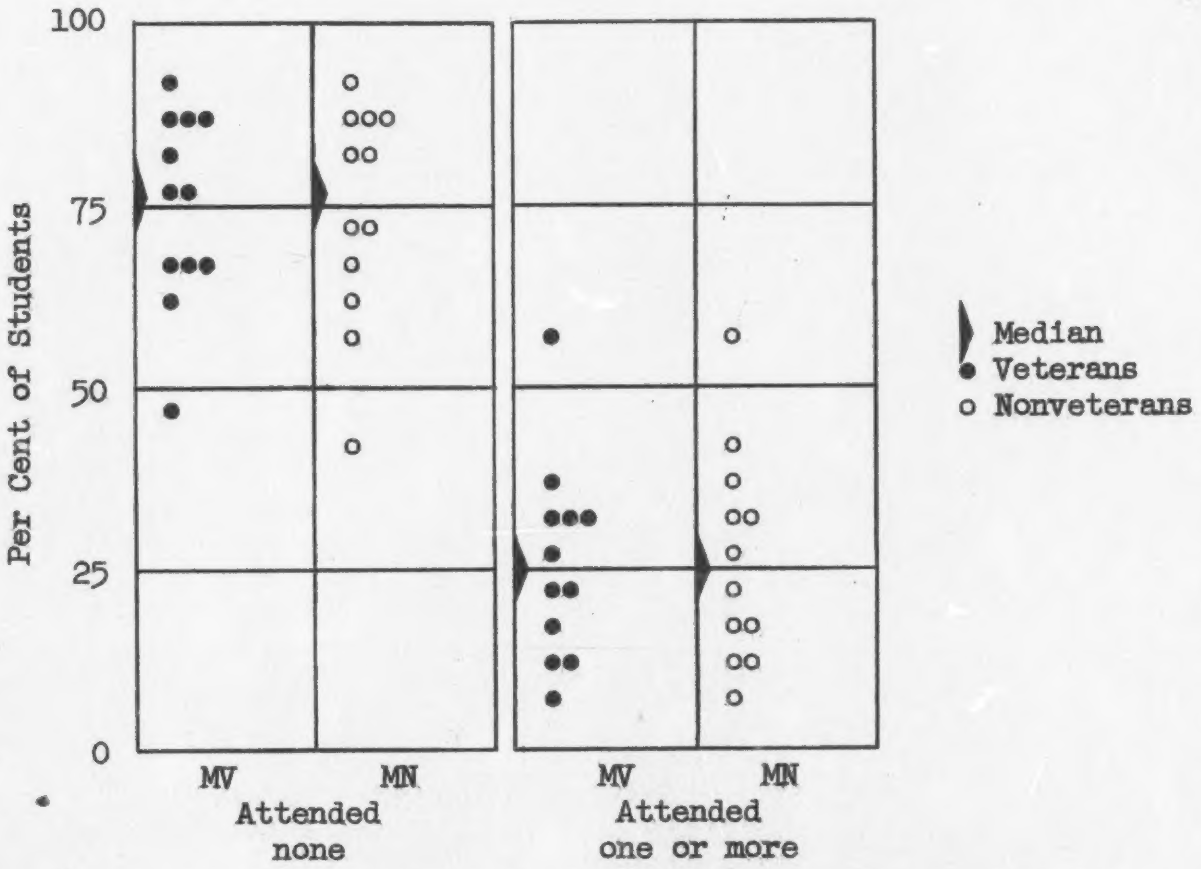
As is shown by the arrowheads in Figure 56, about 35 per cent of the nonveterans and 40 per cent of veterans, in the median group, spent two hours or more per week reading or studying things not required for any course. However, in only seven of the twelve basic groups was the proportion of Category C responses greater for veterans than for nonveterans. Women consistently reported less time devoted to such study than did male nonveterans.

The lower part of the figure shows clearly that there is essentially no relationship between amount of unrequired study and AAG. Only at Midwest Tech, of the basic groups, are category means found to be significant at the 1% level; and here the tendency is for less unrequired study to be associated with higher grades relative to ability. A similar finding was obtained for interrupted veterans at Eastern City. The evidence certainly does not favor the hypothesis that a greater amount of unrequired study is an indication of superior achievement relative to ability.

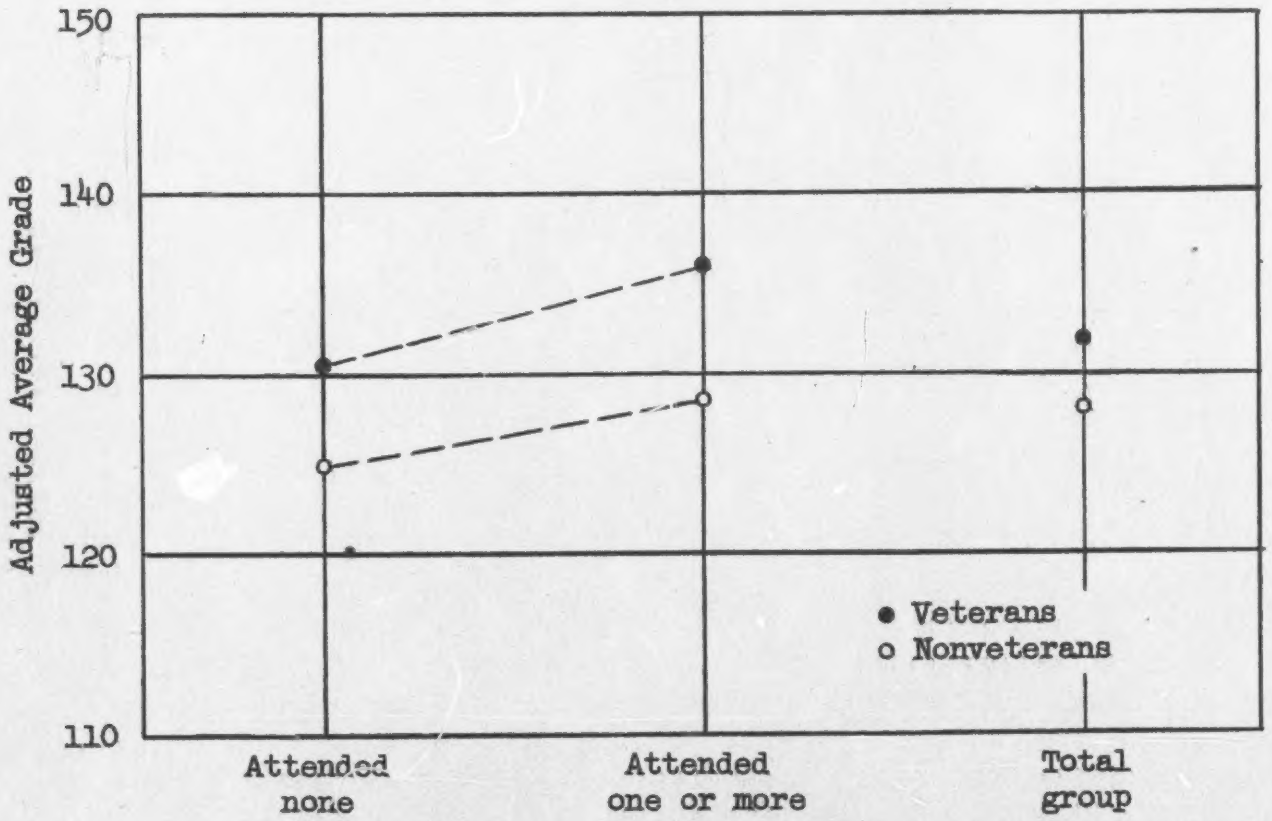
Attendance at Evening Lectures. The second item which it was hoped would provide some indication of intellectual interest was Item 25: "How often, during the past four weeks, have you gone to evening lectures given by visiting lecturers or local faculty members but not required by any specific course?" Two response categories were used: (A) attended no evening lectures, and (B) attended one or more evening lectures. The results are shown in Figure 57.

> About three fourths of the students in a typical group had attended no lectures, although there was considerable variability among colleges. Veterans and nonveterans were very similar with regard to lecture attendance; women attended slightly more often than men. There was a tendency for those who had attended lectures to earn higher grades in relation to ability than those who had not.

An indication of the amount of variability among colleges in lecture attendance is provided by the upper part of Figure 57. At one institution (Midwest City) more than 90 per cent had attended no evening lectures in the four-week period, while at another (Stewart) all but about half had attended lectures. The differences among colleges may reflect, in part, the amount of opportunity to attend such lectures during the four weeks before the questionnaire was filled out. In the median group about 75 per cent had attended no lectures.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 57. ATTENDANCE AT EVENING LECTURES DURING PREVIOUS FOUR WEEKS: ITEM 25

The similarity between veterans and nonveterans in lecture attendance is very great; there is a slight tendency for women to report attending more often than men.

Students who had gone to one or more lectures in the four-week period earned higher grades than those who had not in nine of the twelve veteran groups and eight of the nonveteran groups. Of these twenty-four differences, only four were significant, and these at only the 5% level of confidence. The association between lecture attendance and AAG is not marked, although in the expected direction. The superiority of veterans obviously cannot be accounted for by whatever characteristic is measured by this item.

Summary

This survey of how students spend their time indicates that differences between veteran and nonveteran students are generally slight. Veterans spend less time than nonveterans in attending classes, presumably because in most institutions they have been excused from physical education or military science requirements. They also tend to spend less time in extracurricular activities, which is consistent with the hypothesis that veterans are more serious-minded than nonveterans and are less inclined to engage in "frivolous" pastimes. Also consistent with this hypothesis was the slight tendency found for veterans to spend more time than nonveterans in studying and in voluntary reading and study of materials not assigned by an instructor. Nonveterans exceeded veterans slightly in amount of time spent in athletics, attending lectures and concerts, and in part-time paid employment. No differences were found in time spent in social affairs, bull sessions, and "other non-routine activities."

Women students in general resembled the male nonveterans at the same college in amount of study and time spent in bull sessions. They reported spending more time than male nonveterans in extracurricular and social activities and in attending lectures and concerts. They spent less time in athletics, attending classes and laboratories, in paid employment, and in voluntary reading and studying.

Amount of time spent in attending classes, relative to the student's own institution, is presumably an index of the course load taken by the student. Those students with heavier loads, then, tend to earn higher grades, relative to their ability, than students taking lighter loads. This finding is consistent with the results of similar studies (reported in Chapter III) where course load was obtained directly from the transcripts. Since nonveterans take heavier loads, our usual reasoning would lead us to the conclusion that nonveterans should be expected to excel in AAG. This reasoning is supported by the sign test, which turns out to be highly significant for this item. However, since the lower course load of veterans is presumably due to different factors than those which account for the relationship between load and AAG, the conclusion that nonveterans should be expected to excel in AAG is probably not justified.

In general, amount of time spent in the various types of activity had little or no relationship to Adjusted Average Grade. There was a tendency for study time to be positively related to AAG. Very slight tendencies were noted for those who spent the most time in social activities to earn lower grades relative to ability. Those who attended evening lectures tended to earn slightly higher AAG's than those who did not attend. There is a suggestion that a moderate amount of time spent in bull sessions is associated with higher grades relative to ability than more extreme amounts of time. Time spent in athletics, paid employment, extracurricular activities, participation in cultural activities such as lectures and concerts, and voluntary reading and study are unrelated to Adjusted Average Grade.

Only one of the items dealing with expenditure of time yields sign test results which are significant. Even for this item, which is concerned with course load, closer scrutiny suggests that the relationship obtained is of little, if any, value in interpreting veteran-nonveteran differences in Adjusted Average Grade. It appears, then, that the tendency for veteran students to earn higher grades in relation to ability cannot be accounted for on the basis of differences in amount of time devoted to any of the activities studied by analysis of the questionnaire responses.

RB-50-18

ADJUSTMENT TO COLLEGE

A STUDY OF 10,000 VETERAN AND NON-VETERAN STUDENTS IN 16 AMERICAN COLLEGES

Chapter IX. The GI Bill

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and
W. B. Schrader

Educational Testing Service

July 6, 1950

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Chapter IX

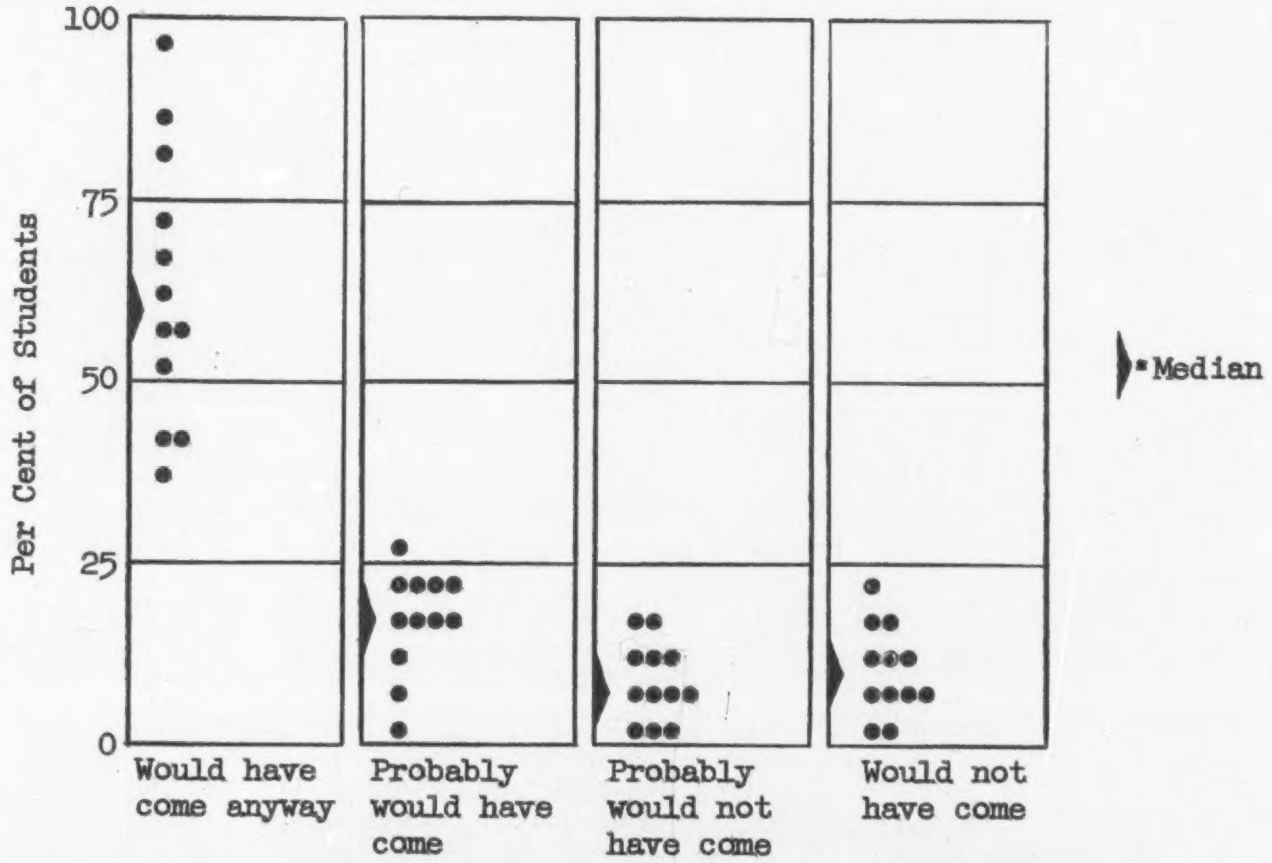
THE GI BILL

The educational provisions of the GI Bill brought about many changes in the educational plans of young men eligible for these benefits. Undoubtedly, some who would have been unable to attend college decided that they could go; others who would have attended college in their home community went away to school; and still others shifted from a less expensive to a more expensive college. In this study, those veterans who were brought into college by the GI Bill were selected for more detailed analysis because of their unique significance for higher education. Their success in competing academically with the students who would have attended without this aid is distinctly relevant to the basic question of who should go to college. Primary emphasis was place on college grades relative to ability as the measure of academic success in these comparisons.

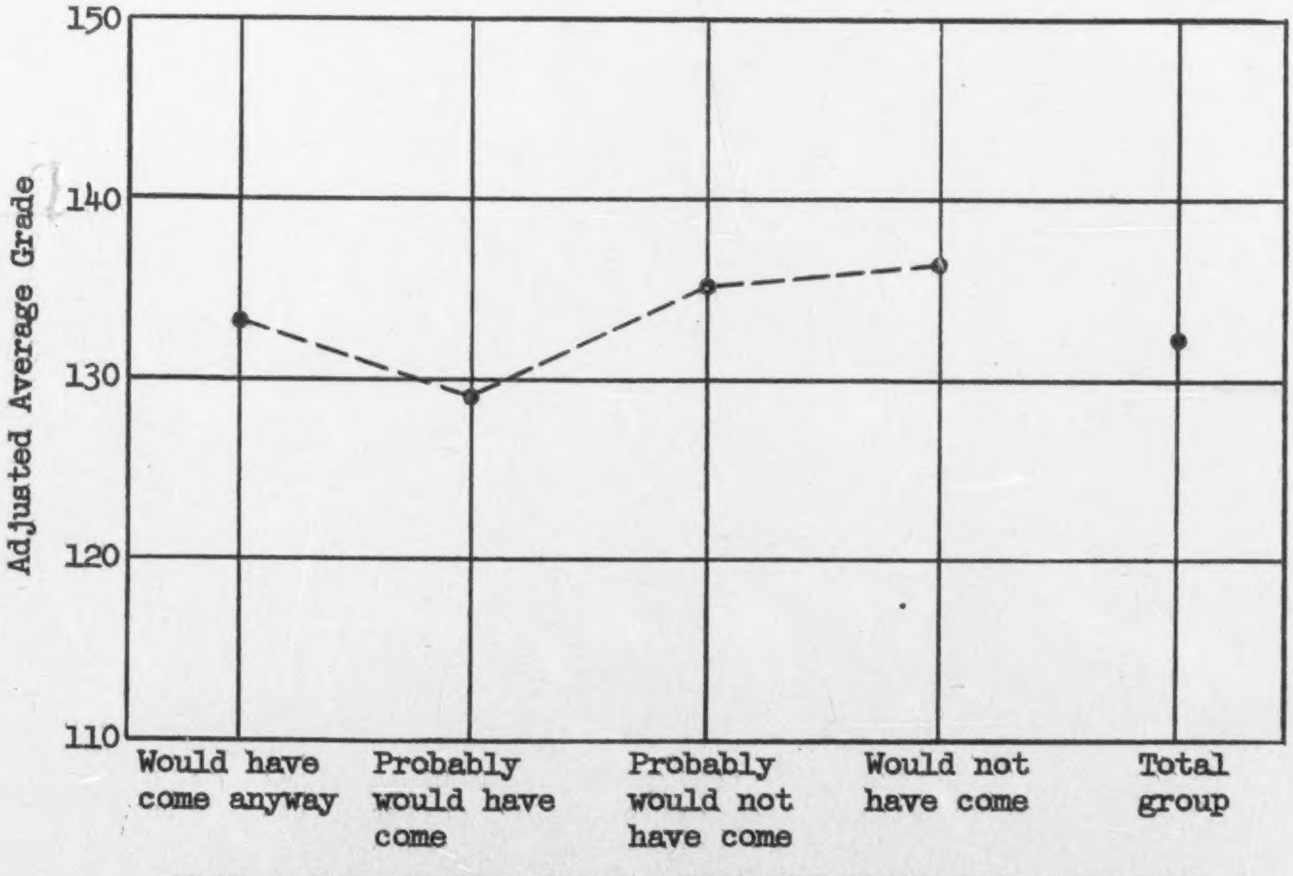
Postwar Educational Plans and the GI Bill. In Item 8(o), students were asked: "Do you think you would have come to college after completing your military service if the financial aid provided by veterans' benefits had not been available to you?" For purposes of analysis, all four of the questionnaire responses were considered: (A) yes, I am quite sure I would have come anyway; (B) I probably would have come, but I'm not sure; (C) I might have come, but I probably would not have come; and (D) no, I am quite sure I would not have come to college. Results of the analysis are shown in Figure 58.

> The educational provisions of the GI Bill brought a substantial number of veterans into college who would probably have missed college without this aid. Perhaps 20 per cent of veterans in the typical freshman group belong in this classification. Colleges differed decidedly in the proportion of their students who would not have attended any college without the federal scholarships. The students brought into college by this aid were quite similar in academic performance, relative to ability, to the remainder of the class; the slight difference which appeared favored the group which needed the financial aid.

In the typical basic college group, about 60 per cent of the veterans reported that they would definitely have attended college without veterans' benefits, and slightly less than 20 per cent reported that they would probably have done so. The remaining 20 per cent divided about equally between those who probably would not have attended and those who definitely would not have done so. Colleges differed widely in the proportion of veterans reporting that they probably or definitely would not have come without the government's financial aid; proportions in these two categories combined ranged from about one in 100 to more than one in three, in the twelve basic



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 58. IMPORTANCE OF FINANCIAL AID PROVIDED BY VETERANS' BENEFITS IN DECISION OF VETERAN STUDENTS TO COME TO COLLEGE: ITEM 8(o).

groups. It must, of course, be remembered that the question dealt only with whether or not the veteran would have attended college at all; whether or not he would have chosen the particular college he was attending was not considered. Thus, although students whose decision to attend college depended heavily on GI benefits constituted a very small proportion of the freshman groups studied at Adams, Stewart, and Douglas, it cannot necessarily be inferred that the GI benefits had little influence in their attending these colleges. Almost one fifth of the freshman veterans enrolled in liberal arts at Evans, Miller and Eastern City and in engineering at Midwest City were students who would *definitely* not have attended college without GI educational benefits. Relatively large proportions of the three groups (Taylor, Southern Tech, and Central State), which included students who entered as freshmen in 1945, considered the benefits essential.

It is apparent from Figure 58 that the students whose college careers were made possible by the GI Bill performed slightly better, relative to ability, than did the rest of the veteran students. The group who definitely would not have come without veterans' benefits had the highest median with respect to AAG, although its margin of advantage was quite small. Only the group who *probably would* have come without veterans' benefits had a median appreciably different from 135; its median was about 130. When the pattern of differences in the twelve basic colleges is examined, none of the categories shows a statistically significant tendency to be above or below the general average. When the significance tests were made in each college group, it turned out that students who *probably would* have attended were significantly low in AAG at the 1% level at Evans and at the 5% level at Miller. Those who would surely have attended were significantly high at Evans. (It should be noted here that no significance test was made when less than one per cent of veterans in the college group chose the category.) On the whole, these results indicate that the students whose college careers were made possible by the educational provisions of the GI Bill performed slightly better, relative to ability, than the veterans who would or probably would have attended college in any case.

Some Additional Comparisons. Veterans who probably would not have come to college without the GI Bill were compared in several additional ways with those who probably would have come without this aid. First, by means of analysis of covariance, the appropriateness of using the same prediction equations for both groups was tested. Data for Miller University were used for this analysis, since the numerically largest group of veterans who would not have come were included in this group. Second, by means of the usual t-test of significance of differences between percentages, significant differences between veterans and nonveterans in responses to questionnaire items were identified, using Miller and Central State data. Finally, some attention was given to the possible effect on the relationship between item responses and AAG produced by the presence of the "would not have come" group. In the discussion which follows, veterans who reported on Item 8(o) that they definitely or probably would have attended college without veterans' benefits will be called the "would have come" group or Subgroup A; those who reported that they probably or definitely would *not* have attended without this aid will be called the "would not have come" group, or Subgroup B.

> In predicting first-year grades, the same regression equation may properly be used in predicting grades for veterans who would have come without veterans' benefits and for veterans who would not have come without these benefits, insofar as the veterans at Miller University are concerned.

An analysis of covariance was done in order to provide a more rigorous check on the basic similarity or difference of the groups in ability relative to achievement. It is apparent from Table 47, in which the analysis of covariance results are presented, that there is no statistically significant difference between the groups for any of the three hypotheses tested. The results for this group of students at Miller indicate that the same prediction equation would be suitable for both groups. It may also be observed from Table 47 that there are only slight differences in the mean American Council on Education Psychological Examination score and in mean High School Rank. The mean is very slightly higher for the "would have come" group for both predictors. The "would not have come" group, on the other hand, earned average grades which were a trifle higher than those of the "would have come" group.

> Analysis of questionnaire responses indicates that the typical veteran who would not have come without GI benefits was somewhat older, saw more service, came from a family with less educational background, was less secure financially, was more likely to be married, and was less likely to be planning to enter a profession than the typical veteran who would have come without GI benefits. Although these differences were statistically significant at both Miller and Central State, there was clearly much overlapping between the two groups in these respects.

Students who would have come differed from those who would not have come in their response to a number of questionnaire items. In this report, only those responses which showed a significant difference between the two groups for both the Miller and Central State students will be considered. Figures 59 and 60 present the results of this phase of the analysis. (In general, one response is sufficient to indicate the nature of the relationship within an item; more than one response is reported only when the additional response adds to the understanding of the relationship.)

The most conspicuous difference is found in Item 8(m) of Figure 59. The "would not have come" group, to a large extent, includes the same veterans who appear in the group who probably would not have attended college if they had never entered the service; the "would have come" group, however, contained only a small proportion who fell in this category. Other responses indicate that the "would not have come" group, as compared with the "would have come" group, had served longer, had been overseas longer, had been separated earlier, were more likely to have decided to

Table 47

COMPARISON OF AVERAGE GRADES EARNED BY VETERAN MALE STUDENTS (A) WHO PROBABLY WOULD HAVE ATTENDED COLLEGE AND (B) WHO PROBABLY WOULD NOT HAVE ATTENDED COLLEGE, WITHOUT VETERANS' BENEFITS

Miller University, College of Arts and Science, Freshmen, 1946-1947

I. Correlations, Means, and Standard Deviations:

Variable	Sub-group	Correlation with: ACPE	Correlation with: H. S. Rank	Correlation with: First-Year Avg. Grade	Mean	SD	N
1. ACPE (1946) Total	A		.29	.43	112	20	279
(raw score)	B		.19	.39	110	20	146
2. High School Rank	A	.29		.44	14.9	3.5	279
(converted score)	B	.19		.43	14.8	2.8	146
3. First-Year College	A	.43	.44		1.48	.58	279
Average Grade	B	.39	.43		1.51	.53	146

II. Multiple Correlations (Variables 1 and 2 vs. Variable 3):

Sample	Multiple R
Subgroup A	.54
Subgroup B	.53
Combined Group	.53

III. Analysis of Covariance Results:

Hypothesis	Chi-square	Degrees of Freedom	Probability that a value greater than obtained would arise by chance
A. Equality of errors of estimate	0.702	1	Between .30 and .50
B. Equality of slopes	0.724	2	Between .50 and .70
C. Equality of intercepts	0.890	1	Between .30 and .50

IV. Difference between Subgroups with Ability Held Constant:

Superior subgroup	Subgroup B (Would not have come)
Advantage expressed in grade units	0.05
Advantage expressed in standard error of estimate units	0.10
Per cent of subgroup A excelling the average subgroup B veteran	54
Level of significance of difference (from IIIC above)	Not significant

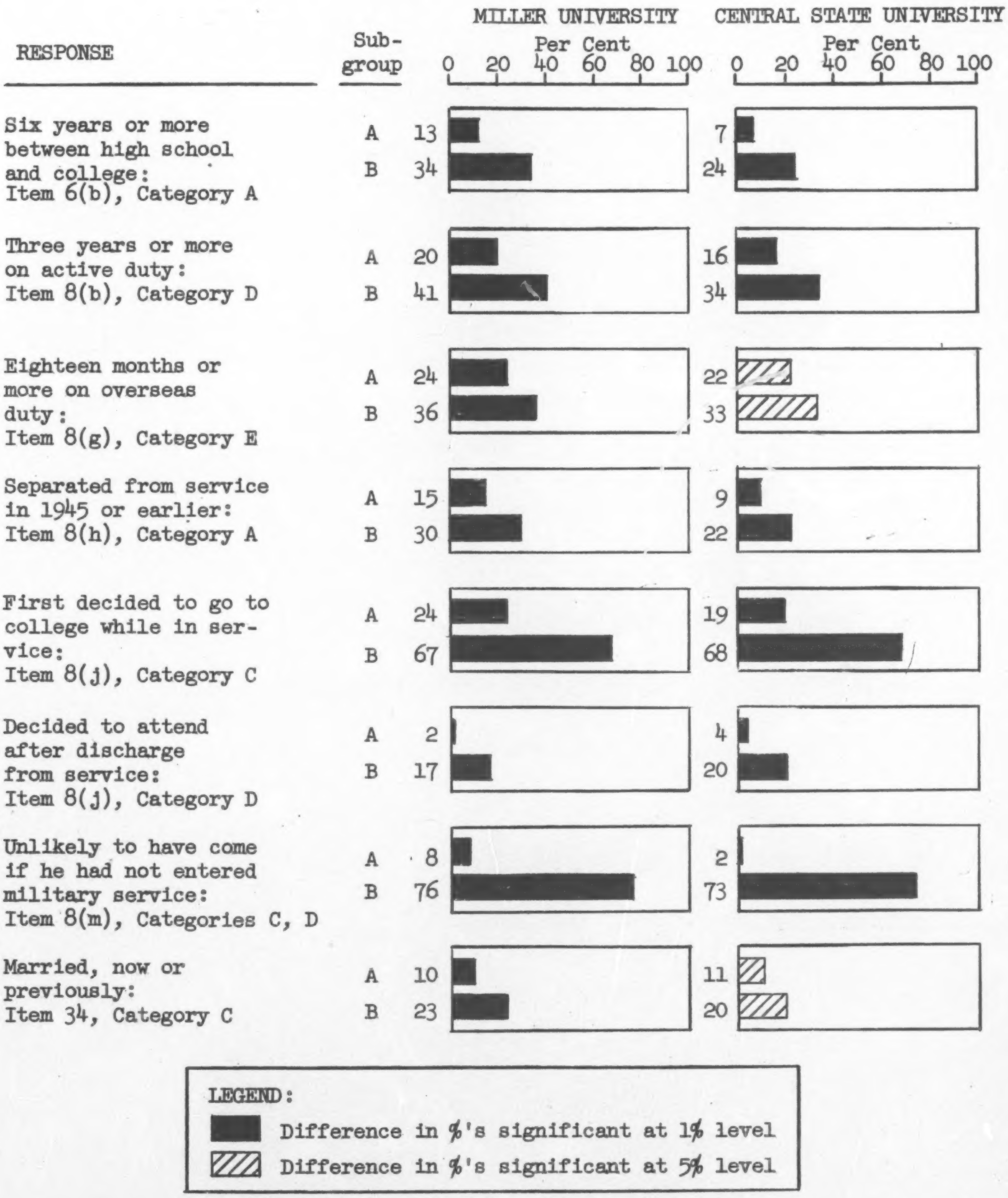


FIGURE 59. PER CENT MAKING VARIOUS SELECTED RESPONSES TO QUESTIONNAIRE ITEMS AMONG VETERANS WHO PROBABLY WOULD HAVE ATTENDED WITHOUT VETERANS' BENEFITS (SUBGROUP A) AND THOSE WHO PROBABLY WOULD NOT HAVE ATTENDED WITHOUT THESE BENEFITS (SUBGROUP B).

attend college while in the service or after discharge, had been out of school longer, were older, were more likely to be married, were more likely to have had a full-time job for six months or more between high school and college, were more likely to be working part-time, and were more likely to worry about making ends meet financially. They were more likely to give "preparation for a better-paying job" as their first reason for being in college, and less likely to state as their first reason that they needed a degree in order to enter their chosen profession. They were less likely to be planning to enter a profession requiring graduate training, and less likely to have come from a family in which the father had completed high school. The head of the family was more likely to have had an annual income of less than $2,000 during their high school years.

When veterans who would not have come are compared with nonveteran students, using Figure 60, the differences in nearly all respects are greater than between the two veteran groups. One notable exception has to do with part-time employment. On this item, the veterans who would not have come are more like the male nonveterans; the veterans who would have come are less likely to be working than either of the other two groups.

The differences in proportions between the veterans who would not have come and the other groups should not be allowed to obscure the fact that there was also substantial overlap between those who would have come and those who would not have come on all items except 8(m) and 8(j).

These results fit the hypothesis that the group of veterans brought into college by the educational provisions of the GI Bill were predominantly men who would have needed financial aid to attend college even if they had not spent several years in military service. A distinctly smaller proportion of these veterans were men who would have given up earlier plans for a college career (because of their greater age and responsibilities) if veterans' benefits had not been provided.

> It was thought that the presence of students who were brought into college by veterans' benefits might have affected the relationship between questionnaire responses and Adjusted Average Grade in the veteran subgroups. The results indicate that this effect was not likely to be a major influence in determining these relationships.

In the main questionnaire analysis, a number of responses were found to be significantly related to AAG for the veteran subgroup but not significantly related for the nonveteran subgroup, in the various colleges. To some extent these differences represent chance fluctuations. Moreover, in the college groups where the veteran subgroup is larger than the nonveteran subgroup, the F-test would be more sensitive for the veterans. However, it is also possible that the presence in the veteran subgroup of students who were brought into college by the GI Bill may account in part for the different results. In order to make a rough check on this hypothesis,

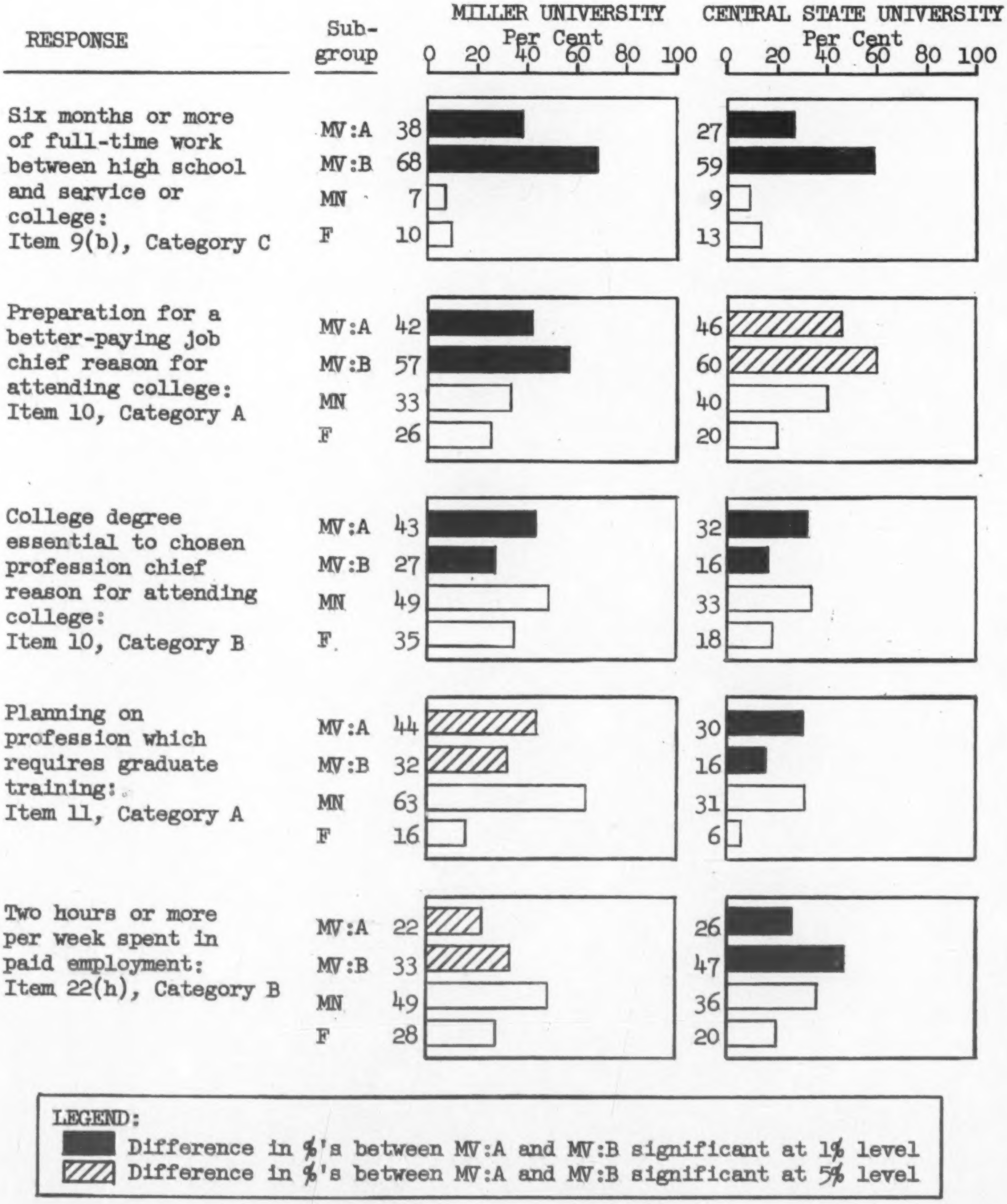


FIGURE 60 (PART 1). PER CENT MAKING VARIOUS SELECTED RESPONSES TO QUESTIONNAIRE ITEMS AMONG: VETERANS WHO PROBABLY WOULD HAVE ATTENDED WITHOUT VETERANS' BENEFITS (MV:A), VETERANS WHO PROBABLY WOULD NOT HAVE ATTENDED WITHOUT THESE BENEFITS (MV:B), MALE NONVETERANS (MN) AND WOMEN STUDENTS (F).

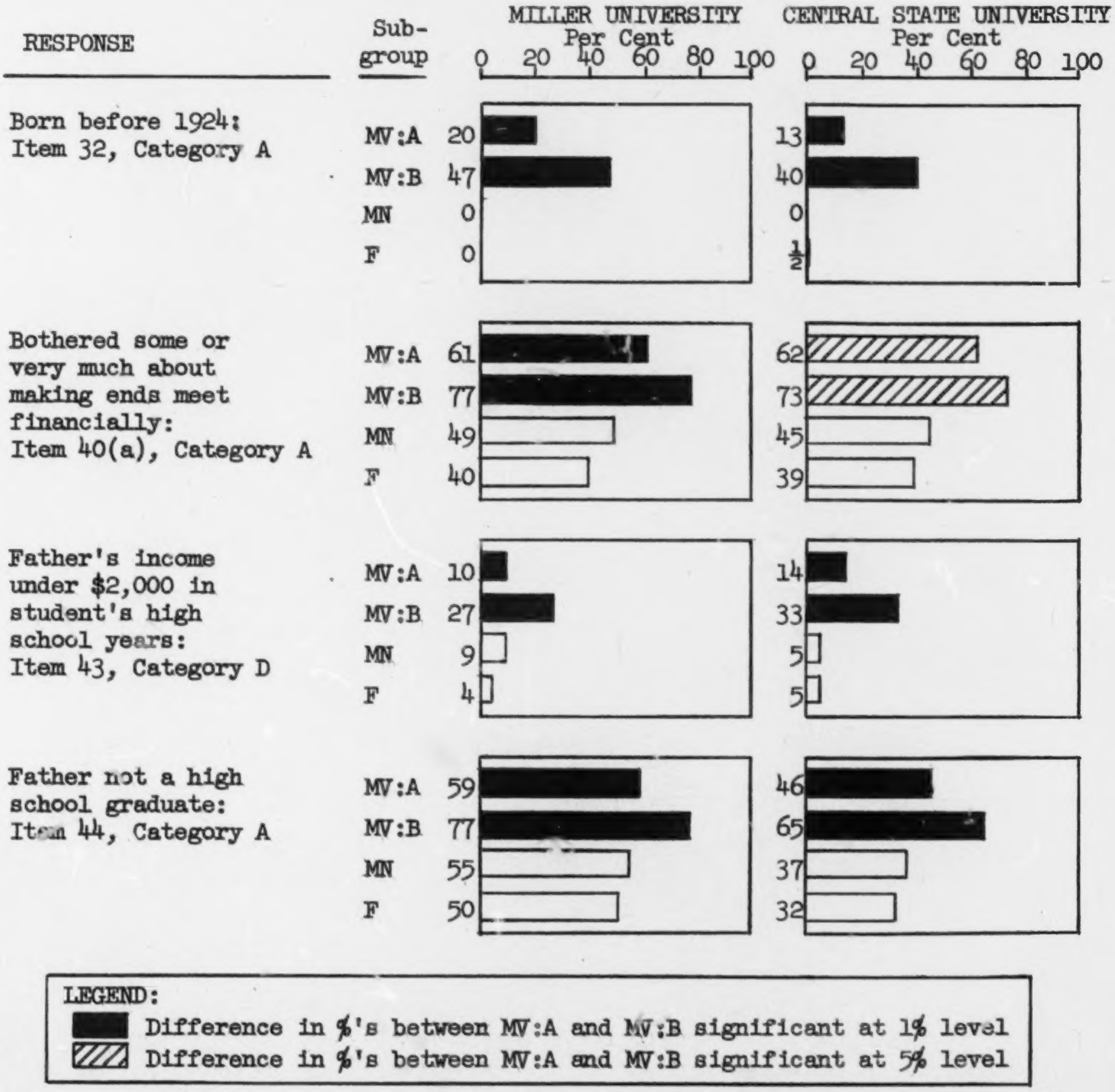


FIGURE 60 (PART 2). PER CENT MAKING VARIOUS SELECTED RESPONSES TO QUESTIONNAIRE ITEMS AMONG: VETERANS WHO PROBABLY WOULD HAVE ATTENDED WITHOUT VETERANS' BENEFITS (MV:A), VETERANS WHO PROBABLY WOULD NOT HAVE ATTENDED WITHOUT THESE BENEFITS (MV:B), MALE NONVETERANS (MN) AND WOMEN STUDENTS (F).

the results of the significance tests involving association between questionnaire responses and AAG were examined for two college groups having a relatively large proportion of veterans who would not have attended without GI aid. The two college groups chosen for this purpose were Miller freshmen and Central State freshmen. In all, ten questionnaire responses were found to have a significant association for veterans in both groups and for nonveterans in neither group (One of these was age, for which a different plan of categorizing was used for each subgroup.) Using Miller data, the veterans group was broken down, using Item 8(o), into those who would have come without the GI Bill and those who would not have come without this aid. By hypothesis, these responses should show a significant relationship for the "would not have come" and total group, but not for the "would have come" group. In testing this hypothesis, students who would have come (Subgroup A) and who also made a particular questionnaire response were compared with the remainder of the veteran students. Similarly, veterans who would not have come (Subgroup B) and who chose each response were compared with the remainder of the group.

Results of this analysis are shown in Table 48. Only three of the eleven responses showed the expected pattern, while six showed the reverse pattern. Of the three which fit expectation, the association of greater age with higher AAG is particularly relevant. However, when age was analyzed in the same way, using Central State data, it fell in the "reverse" group; i.e., it was significant for Subgroup A (would have come) but not significant for Subgroup B (would not have come). It would appear, on this showing, that the presence of students who were brought into college by the GI Bill in the veterans group did not lead to major differences between veterans and nonveterans in the way item responses are associated with AAG. It was judged that the labor involved in making a more precise evaluation of this effect was not warranted.

Military Service and Educational Plans. A different approach to assessing the influence of the GI Bill upon college-going was provided by Item 8(m), which asked: "Regardless of how you felt about going to college when you left high school, do you think you actually would have gone to college if you hadn't entered military service?" This item represented an attempt to abstract "college-going tendency" from the complex of confusing influences introduced by the war. Thus, the student was asked to eliminate from consideration the influence of his service experience, the influence of being well above the usual college entrance age when discharged, and the influence of the educational benefits of the GI Bill on his plans. In contrast to Item 8(o), this item classified as "college-goers" men who required financial aid as discharged veterans but who would probably have attended college if they had never entered the service. On the whole, it seems likely that eligibility for GI benefits was the outcome of military service which was decisive for many of the students who would not have attended if they had never entered the service. On the basis of responses to Item 8(m), students were divided into four groups: (A) would definitely have attended, (B) probably would have attended, (C) probably would not have attended, and (D) almost sure not to have attended. Results are shown in Figure 61.

Table 48

OUTCOME OF SIGNIFICANCE TESTS WHEN VETERANS ARE CLASSIFIED ON THE BASIS OF WHETHER OR NOT THEY WOULD HAVE ATTENDED COLLEGE WITHOUT VETERANS' BENEFITS AS WELL AS ON QUESTIONNAIRE RESPONSE, FOR TEN RESPONSES WHICH ARE SIGNIFICANT FOR VETERANS AT BOTH CENTRAL STATE AND MILLER AND NOT SIGNIFICANT FOR NONVETERANS IN EITHER COLLEGE GROUP

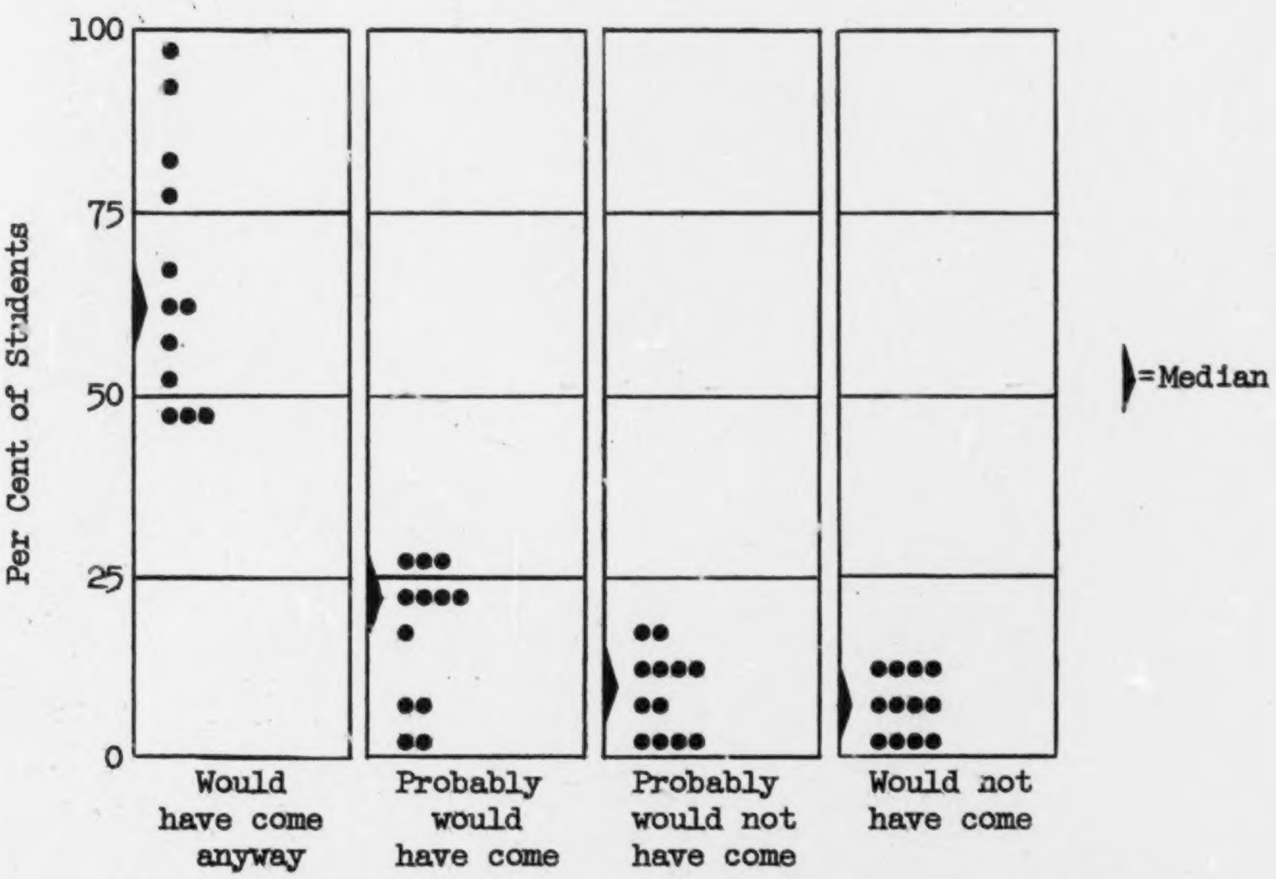
(Miller University, 425 Freshman Male Veterans Enrolled in Liberal Arts)

Item	Category	Condensed Statement of Response	Veterans Who Would Have Come		Veterans Who Would Not Have Come		Total Veteran Subgroup[a]	
			%	Mean AAG	%	Mean AAG	%	Mean AAG
Response Is Significant for Veterans Who Would Not Have Attended Without Veterans' Benefits and for Total Group								
29	A	Keep ahead of schedule on assignments	11	140	06	146^{+}	17	142^{++}
32	A	Born before 1924	13	136	16	140^{+}	29	138^{+}
40(g)	C	Bothered little or none about inability to concentrate	17	138	09	143^{+}	26	140^{++}
Response Is Significant for Veterans Who Would Have Attended Without Veterans' Benefits and for Total Group								
13	B	College degree not absolutely necessary to future work	26	122^{--}	14	133	40	126^{-}
18	A	Enjoying studies less than anticipated	20	118^{--}	09	128	29	121^{--}
20	A	Keeping up in studies more difficult than anticipated	36	125^{-}	16	130	52	127^{-}
37	A	Interested in half or fewer courses	24	122^{--}	12	128	35	124^{--}
38	C	Seldom or never feel courses not worth-while	20	141^{++}	11	141	31	141^{++}
40(1)	A	Bothered some or very much about making up deficiency	18	115^{--}	16	124	33	119^{--}
Response Is Significant for Both Veteran Subgroups and for Total								
40(g)	A	Bothered very much about inability to concentrate	16	121^{-}	07	113^{--}	23	119^{--}

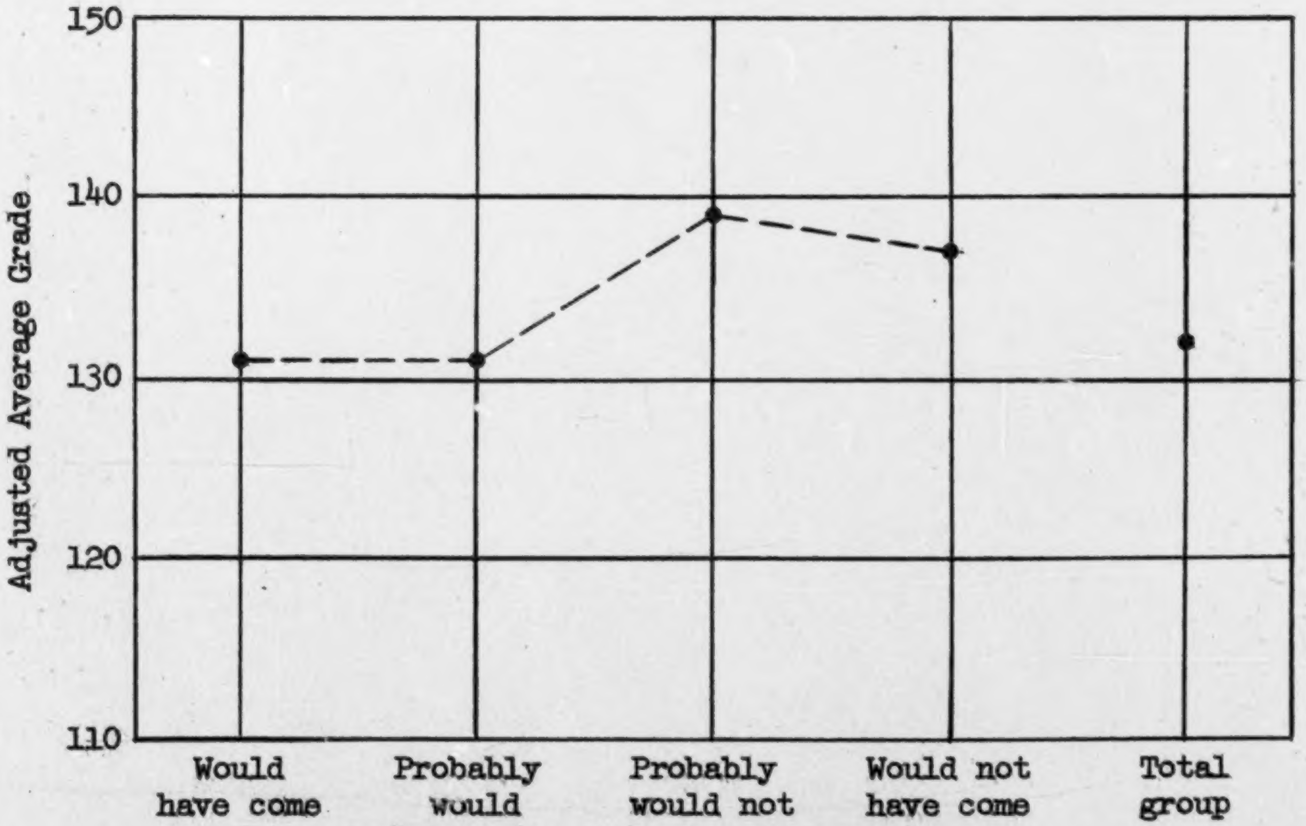
[a] The general Mean AAG for the veteran subgroup is 131, the standard deviation of AAG is 37.

+ or - : Difference in Mean AAG between these students and remainder of veterans is significant at 5% level.

++ or --: Difference in Mean AAG between these students and remainder of veterans is significant at 1% level.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 61. LIKELIHOOD OF STUDENT'S ATTENDING COLLEGE IF HE HAD NOT ENTERED SERVICE: ITEM 8(m).

> When veterans were asked whether they thought they would have attended college if they had not entered the service, about 60 per cent were reasonably sure that they would have attended, about 20 per cent said they probably would have attended, about 10 per cent thought they probably would not have attended and somewhat less than 10 per cent thought they would not have attended. The two groups who considered their college attendance unlikely tended to earn higher Adjusted Average Grades than the other veterans. Those who *definitely* would not have attended without military service excelled the remaining veterans in all seven of the college groups which contained ten or more such veterans. Statistically significant differences on this item were found in three of the college groups.

In the typical basic group, slightly more than 60 per cent believed that they would have attended college if they had never entered military service, and about 20 per cent believed that they probably would have attended. About 10 per cent thought that they probably would not have gone, and somewhat less than 10 per cent were almost sure that they would have missed college had it not been for their service experience. These figures are quite similar to those for Item 8(o). With one exception--the small group of liberal arts freshmen at Eastern City--the same college groups which had relatively few students who considered GI benefits essential also had relatively few students who would probably have missed college if they had not entered the service.

Item 8(m) appears to be somewhat more closely related to AAG than was Item 8(o). The two groups who probably would not have gone show medians between 135 and 140; the two groups who probably would have gone show medians just over 130. When the pattern of differences in the twelve basic groups is considered, there is a reasonably clear trend in favor of the two groups of students who *would not* have attended. It may be noted that, for Category D, among the seven groups which include 10 or more students, all seven are above the remainder of the group in mean AAG, a trend which is significant at the 5% level. In one group, Western State, those who were sure they would not have gone were significantly high in AAG at the 1% level; those who were sure they would have gone were significantly low in AAG at the 1% level. Two differences, in other college groups, were significant at the 5% level. On the whole, the slight association with AAG was favorable to the students for whom military service--and presumably the veterans' benefits deriving from this service--led to a decision to attend college.

Although primary emphasis was placed on achievement relative to ability in analyzing responses to Items 8(o) and 8(m), it was thought desirable to secure some evidence on the relationship between responses to these items and ability and achievement considered separately. Accordingly, Table 49 presents mean scores on predictors and mean average grades for engineering freshmen at Middle State and for liberal arts freshmen at Central State. Differences tend to be small. The group who definitely would have come to college without GI benefits is consistently above the over-all average in

Table 49

RELATION BETWEEN COLLEGE PLANS AS REPORTED ON ITEMS 8(o) AND 8(m) AND VARIOUS MEASURES OF APTITUDE AND ACHIEVEMENT

I. Middle State University, 352 Freshmen in Engineering

College Plans	Item	ACPE Total (raw score)	High School Rank	College Average Grade	AAG	Per Cent of Group
Definitely would have come	8(o)	90.1	15.8	1.44	134	53
	8(m)	90.3	16.0	1.47	135	53
Probably would have come	8(o)	87.5	16.1	1.48	136	24
	8(m)	88.0	15.7	1.38	131	27
Probably would not have come	8(o)	82.3	15.3	1.27	128	10
	8(m)	78.9	14.0	1.12	126	11
Definitely would not have come	8(o)	86.1	14.3	1.21	127	12
	8(m)	86.8	15.1	1.40	136	9
Total Group		88.1	15.6	1.40	133	100

II. Central State University, 466 Freshmen in Liberal Arts

College Plans	Item	Composite Test Score	High Sch. Average Grade	College Average Grade	AAG	Per Cent of Group
Definitely would have come	8(o)	12.8	2.52	2.23	134	56
	8(m)	12.7	2.53	2.22	134	61
Probably would have come	8(o)	11.8	2.41	2.11	133	22
	8(m)	12.3	2.45	2.16	133	20
Probably would not have come	8(o)	12.0	2.43	2.16	136	10
	8(m)	12.2	2.40	2.22	140	9
Definitely would not have come	8(o)	12.9	2.40	2.22	137	12
	8(m)	12.2	2.26	2.09	136	10
Total Group*		12.5	2.48	2.20	134	100

*Includes two students who did not answer 8(o) and 8(m).

both predictors in both schools, but it is not always the highest of the four groups. The differences among the other three groups in the measures of aptitude favor the "probably would have come" group to a slight degree.

Disabled Veterans. In the questions previously discussed, no distinction has been made between disabled veterans drawing benefits under Public Law 16, which is limited to the vocational rehabilitation of veterans having a service-connected disability, and the veterans whose benefits derived from Public Law 346 or various other laws. Item 8(n) asked: "Are you now drawing (or have you applied for) veterans' educational benefits from the Veterans Administration?" Responses were classified into three categories: (A) yes, under Public Law 16 (and any others); (B) yes, under Public Law 346 and/or any others except Public Law 16; and (C) no, I have not applied for veterans' educational benefits. Results of this analysis are shown in Figure 62.

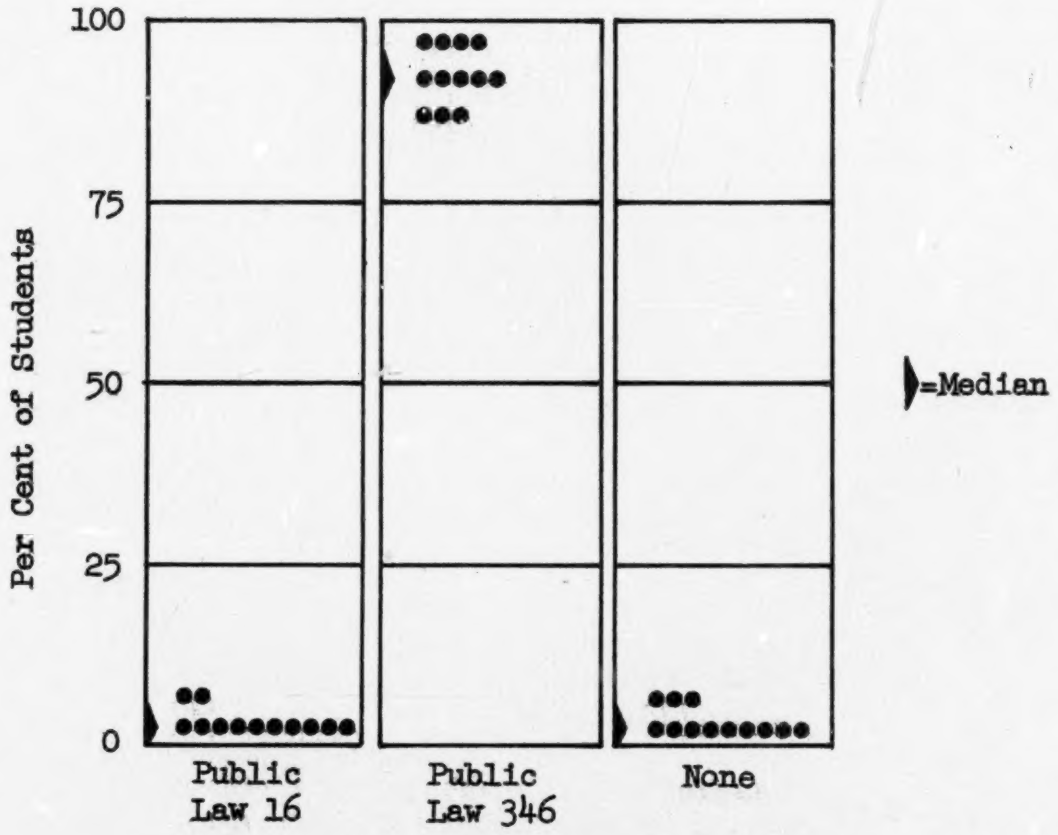
> Veterans drawing benefits under Public Law 16 constituted less than five per cent of the veteran subgroup in the typical basic group. In general, they were earning about as high grades, relative to ability, as the veteran group as a whole.

Students who were drawing benefits under Public Law 16 accounted for less than five per cent of the veterans in the typical basic group. In the twelve groups, the highest per cent was eight and the lowest was one. The disabled veterans have a higher mean AAG in five college groups and have a lower mean AAG in seven groups. The median of the mean AAG's is slightly below the over-all average. It is clear that the difference between the disabled veterans and the remainder of the group is not statistically significant. When the various college groups were considered individually, one instance was found in which the mean AAG of the disabled veterans was significantly lower, at the 5% level, than the mean AAG of the remaining veterans. In the absence of any clear trend in the mean AAG's between disabled veterans and the group as a whole, it appears that the disabled group held its own in the academic competition with the other veterans, insofar as AAG is concerned.

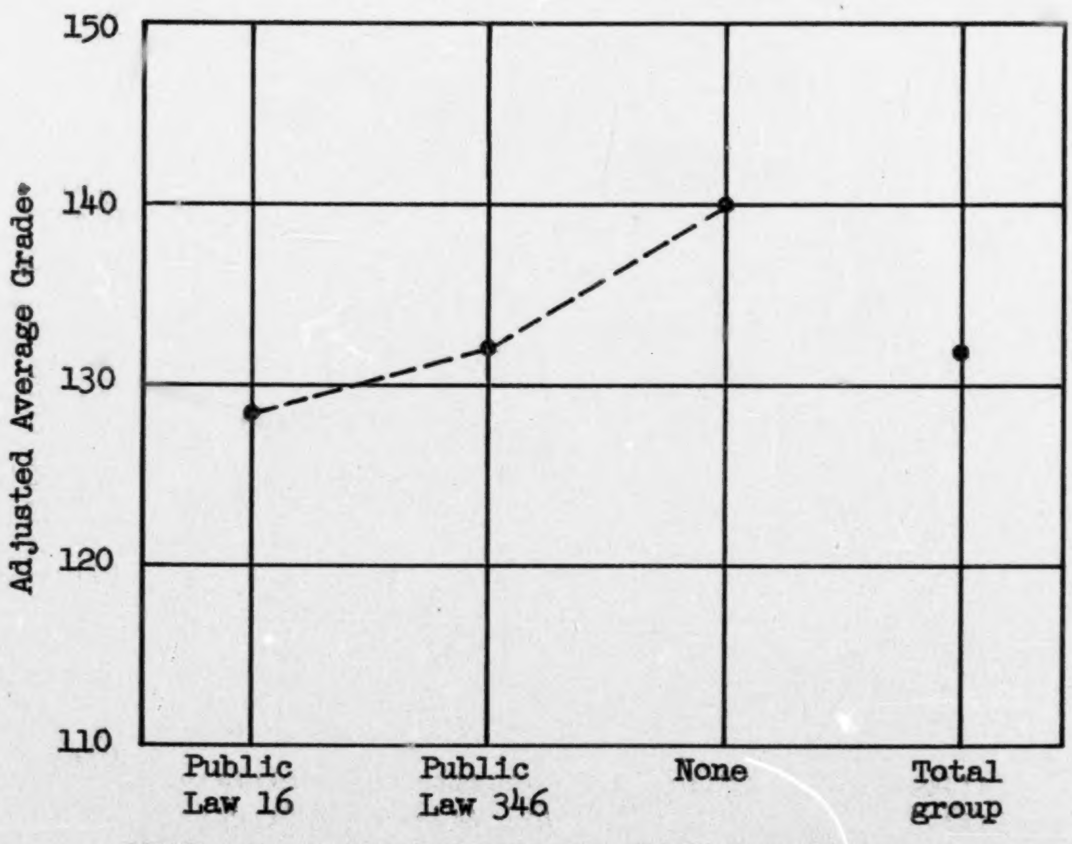
Veterans Not Drawing Benefits.

> Typically, veterans not drawing benefits amounted to less than five per cent of the veteran subgroup in the twelve basic groups. They showed some tendency to earn higher AAG's than the other veterans, but their advantage was not statistically significant.

Figure 62 also shows the results for the small group of veterans who reported that they were not drawing benefits. These veterans amounted to less than five per cent of the veterans in the median basic group. The exact proportion would depend, of course, on whether or not men who served in the merchant marine and field services were classified as veterans or as nonveterans. In any case, it appears likely that a portion of the group not drawing benefits were saving them to use for later professional training; it is of course possible that a few of these veterans were discharged under conditions which made them ineligible for benefits.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 62. VETERANS' EDUCATIONAL BENEFITS APPLIED FOR: ITEM 8(n).

There was some tendency for veterans not drawing benefits to be above average in AAG. Although the median of their mean AAG's was 140, not much reliance may be placed on this difference in view of the small number of students involved. In the various college groups, no significant association with AAG was found.

Conclusions

Typically, in the basic twelve college groups, about ten per cent of veterans would not have attended college without the educational benefits of the GI Bill, and another ten per cent would probably not have attended. The proportion of veterans who reported that they probably or definitely would not have attended without veterans' benefits varied widely among the colleges. In most of the groups, they represented a substantial minority of the veteran subgroup.

On the whole, the students who would not have attended without veterans' benefits earned very slightly better grades relative to ability than did those who would probably have attended in any case. No significant trend was apparent for likelihood of college attendance with GI aid to be related to Adjusted Average Grade. It should be remembered, of course, that the veteran subgroups tended to be superior to the nonveteran subgroups in Adjusted Average Grade.

Veterans who were brought into college by the GI Bill differed in a number of respects from those who would have attended without this aid. In studies of veterans in two colleges, it was found that the typical student who attributed considerable weight to the GI Bill in his decision to come to college was older, had been out of school longer, had served longer, had been overseas longer, came from a family with less educational background, was more likely to be married, was probably less well off financially, and was less likely to be planning to enter a profession than were the other veterans. There is, to be sure, much overlapping between the two groups in nearly all of the specific characteristics. Perhaps one fourth of the students brought into college by the GI Bill were students who would have attended college if they had never entered the service; less than ten per cent of those who would have attended college without GI aid were led to attend by their military service.

A brief exploration was made of the contribution of veterans who would not have attended college without GI aid to the association between various item responses and Adjusted Average Grade. The results indicated that the presence of these students in the veteran subgroups was not a major determiner of the relationships.

Veterans were asked whether they thought they would have attended college if they had never entered the service. The proportions of students indicating various probabilities of college attendance were quite similar to those for the question on the GI Bill. There was a slight tendency for the veterans who had not originally planned to enter college to outdo the other veterans in Adjusted Average Grade.

Little evidence was found that a consistent difference in ability level existed between those who probably would have and those who probably would not have attended college. There was some indication that those whose college plans had been quite definite were slightly higher in ability measures than the remaining veterans.

Disabled veterans drawing benefits under Public Law 16 included perhaps five per cent of the median basic group. The differences between these students and the veteran group as a whole, considering the small number of students in this group, were too small to indicate any clear superiority or inferiority for the disabled group.

Veterans who were not drawing benefits at the time of the study amounted to less than five per cent of the veterans in the median basic subgroups in this study. These veterans showed some tendency to earn better Adjusted Average Grades than the other veterans, but their advantage was not statistically significant.

The evidence presented in this chapter indicates that when students are selected according to the criteria used by the colleges in admitting veterans, there is no distinct difference either in ability or in grades adjusted for ability between those who would have come and those who would not have come without financial aid. This in turn supports the view that a substantial pool of effective academic talent could be tapped by lowering economic barriers to higher education.

PB-50-19

ADJUSTMENT TO COLLEGE

A STUDY OF 10,000 VETERAN AND NON-VETERAN STUDENTS IN 16 AMERICAN COLLEGES

Chapter X. The Student Views His College

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and

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May 16, 1950

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Chapter X

THE STUDENT VIEWS HIS COLLEGE

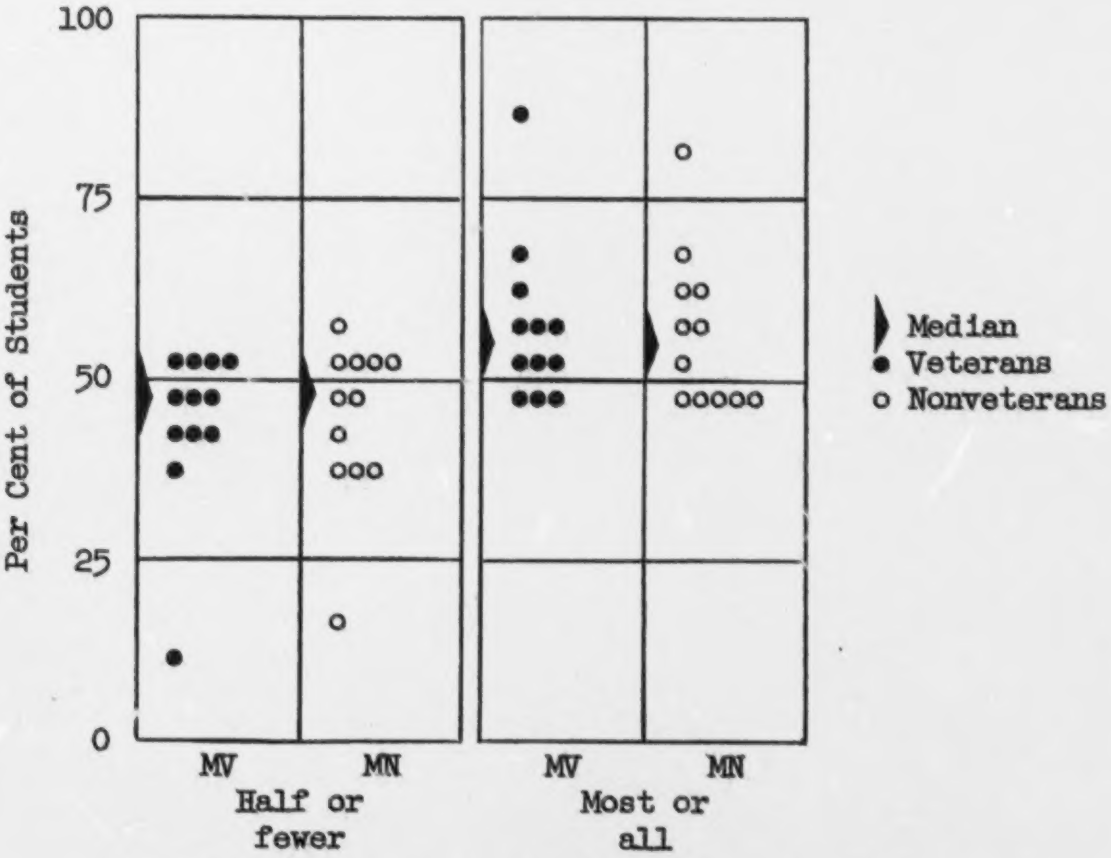
How did the postwar college look to its students? Did veterans approach college with a "chip-on-the-shoulder" attitude toward an institution accustomed to dealing with younger students? Do attitudes toward the college, and toward its program, faculty, and facilities help to explain why some students do better work than would be expected on the basis of measures of their ability? Are differences in attitudes toward college relevant to the problem of accounting for veteran-nonveteran differences in Adjusted Average Grade? Answers to these questions were sought in a series of questionnaire items, including one which allowed the student to suggest any changes which he felt might help him to get more out of his college experience.

Certain features of the procedure used in administering the questionnaire have a special bearing on the interpretation of the results and should be reviewed at this point. Among the relatively favorable features are: first, the fact that the students were assured that the questionnaires would be studied only by an outside organization and that their individual answers would not be available to anyone at their college; and second, the fact that virtually all students took the questionnaire near the end of their first or second year of college, which were opportune times for stock-taking by the student on the basis of a reasonable amount of college experience. The results cannot necessarily be taken at full face value, however. Students may have "pulled their punches" a bit because of loyalty to their colleges, or, on the contrary, may have made numerous disparaging comments because of some transitory irritation. Moreover, the sample studied is probably not truly representative of freshmen and sophomores in American colleges; the results presented in this chapter should, therefore, be taken only as a reasonable first approximation of the opinions of lower-division students in the spring of 1947.

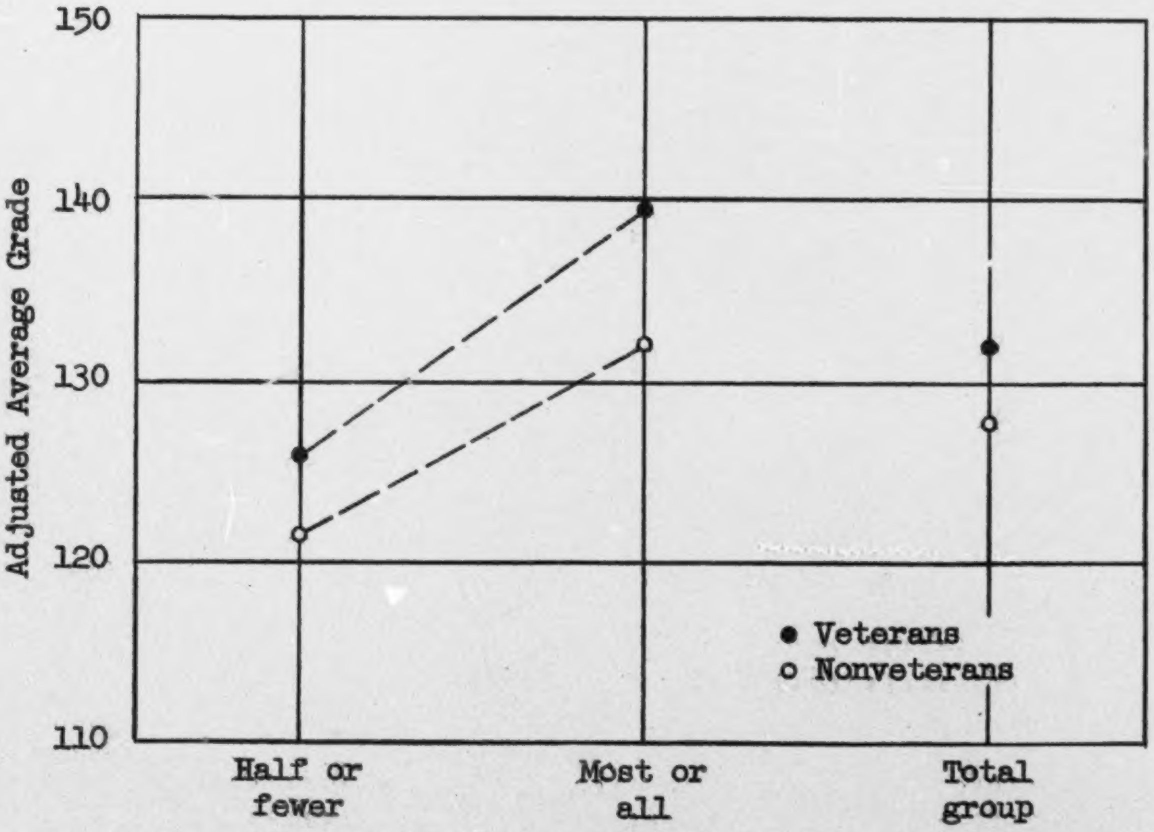
Evaluation of the Educational Program

Interest in Courses. Discussion of student attitudes toward the college may well begin with the rather specific question raised in Item 37: "Of the courses you are now taking, how many would you say you are really interested in?" Responses were divided into two groups: (A) interested in half or fewer of these courses, and (B) interested in most or all. This division split the students into two groups of roughly equal size. Results for the twelve basic groups are shown in Figure 63.

> The majority of the freshman students were interested in most or all of their courses. Veterans, nonveterans, and women were in close agreement on this



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 63. PROPORTION OF COURSES REALLY OF INTEREST TO STUDENT: ITEM 37

> point. In the various college groups, students who made the more favorable evaluation showed a clear tendency to earn higher Adjusted Average Grades.

It is clear that the majority of the students were interested in most of their courses, even during the freshman year when required courses predominate. In none of the twelve basic groups did the per cent expressing the more favorable view fall below 40; the percentage of favorable responses was almost 90 for veterans in engineering at Midwest City. When veterans, nonveterans, and women students are compared with respect to attitudes toward their current studies, the differences are remarkably slight. The opinions of sophomores in this study appeared to be somewhat more favorable than those of freshman groups from the same college.

The relationship between attitude toward college studies and Adjusted Average Grade was quite marked; in all twelve of the groups, for both nonveterans and veterans, less favorable attitudes were associated with lower AAG's. Median AAG's were as follows: "favorable" veterans, about 140; "unfavorable" veterans, about 125; "favorable" nonveterans, about 130; "unfavorable" nonveterans, about 120. In six of the twelve veteran subgroups and three of the nonveteran subgroups, the mean AAG was significantly lower (at the 1% level) for students giving the less favorable response.

Although the relationship of this item to AAG is clear enough, it is by no means apparent what interpretation should be put upon the finding. Since AAG is rather closely related to actual grades, it appears likely that expressed lack of interest reflects dissatisfaction on the part of the student with a program in which he is not doing well. If this hypothesis is accepted, it might be inferred that veterans' attitudes are slightly more responsive to such influences than is true for nonveterans.

The similarity in the attitudes of veterans and nonveterans on this item suggests that it will not be helpful in accounting for differences between veterans and nonveterans in grades relative to ability. This hypothesis was confirmed by the negative results when the sign test was applied.

Enjoyment of Studies. Approaching the problem of satisfaction in another way, Item 18 asked the students, "In general, are you enjoying your studies in college this term as much as you had expected to?" Responses were divided into (A) enjoying studies less than anticipated, and (B) enjoying studies as much or more than anticipated. In the analysis, attention was focussed on the "disappointed" group. Results are given in Appendix Table 18.

> Students who found courses less enjoyable than they had expected made up almost one fourth of the typical group; little difference was found between veterans, nonveterans, and women in this respect. The disappointed students were consistently below the general average of their subgroup in Adjusted Average Grade.

Students who were not finding their studies as enjoyable as they had expected constituted a substantial minority of the student groups, amounting to almost one fourth for both veterans and nonveterans. Little difference in attitude was found among male veterans, male nonveterans, and women students. Although there was rather little variation from college to college with respect to this item, it may be noted that the Midwest City engineers showed the lowest per cent of "disappointed" students, among the twelve basic groups. Sophomores tended to have more favorable opinions than the corresponding freshman groups in the same college.

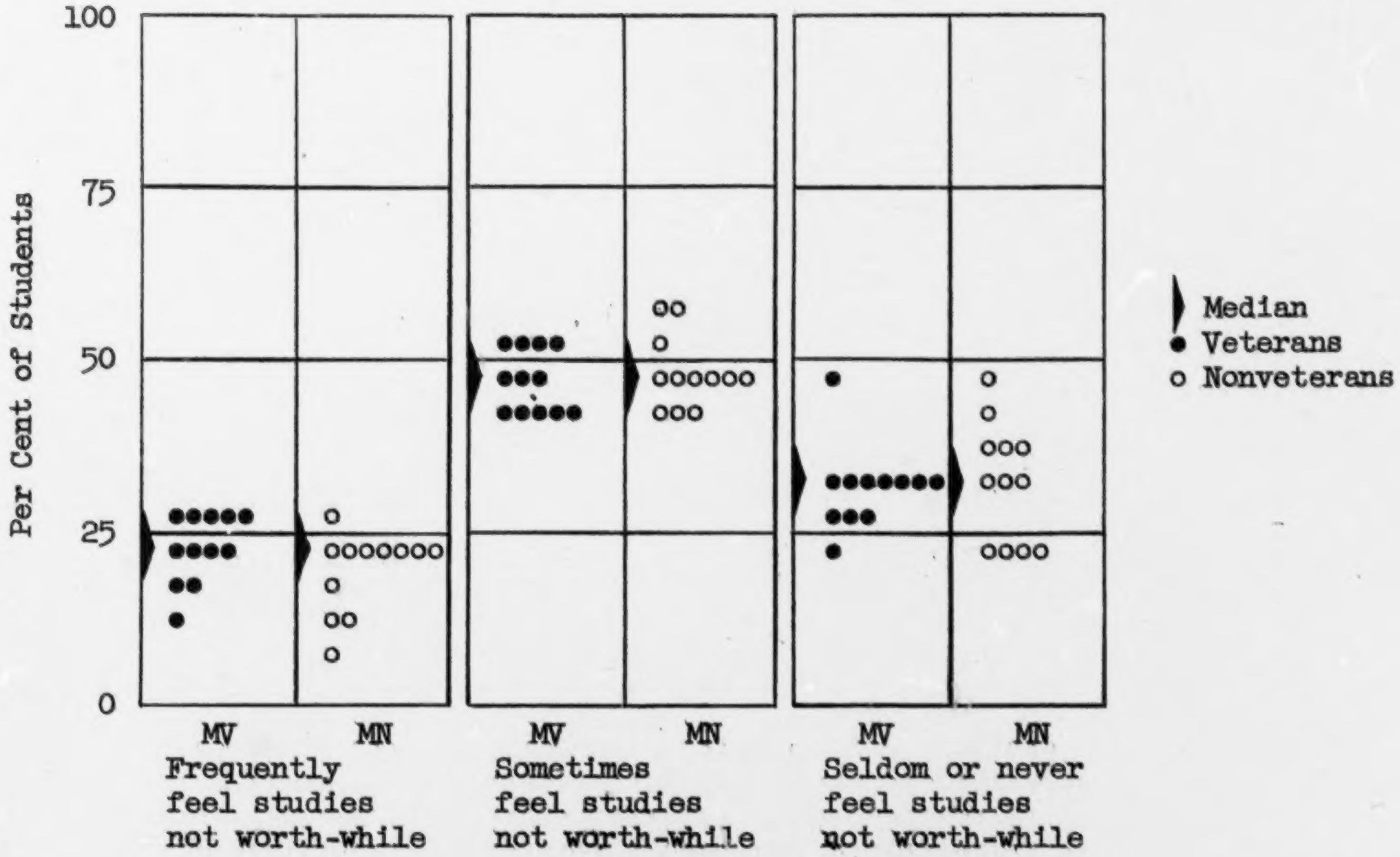
A marked association between unfavorable views and low AAG is apparent. In all but one of the basic subgroups, the students who expressed disappointment were lower in mean AAG than students in the other item category. The median values of the mean AAG's are about 120 for the "disappointed" veterans and 140 for those who were better satisfied; the corresponding figures for nonveterans are about 110 and 130. The analysis of each of the twelve college groups separately yielded eight differences significant at the 1% level for the veterans and five such differences among the nonveterans, when students who gave the less favorable response were compared with students in the other category. The finding that underachievement in college work and disappointment with college studies at the end of the year go hand in hand is reasonable; the data available do not permit any clear inference regarding cause and effect relationships.

This item does not help in accounting for veteran-nonveteran differences; this outcome is reasonable in view of the slight differences between veterans and nonveterans in the per cent choosing each response category.

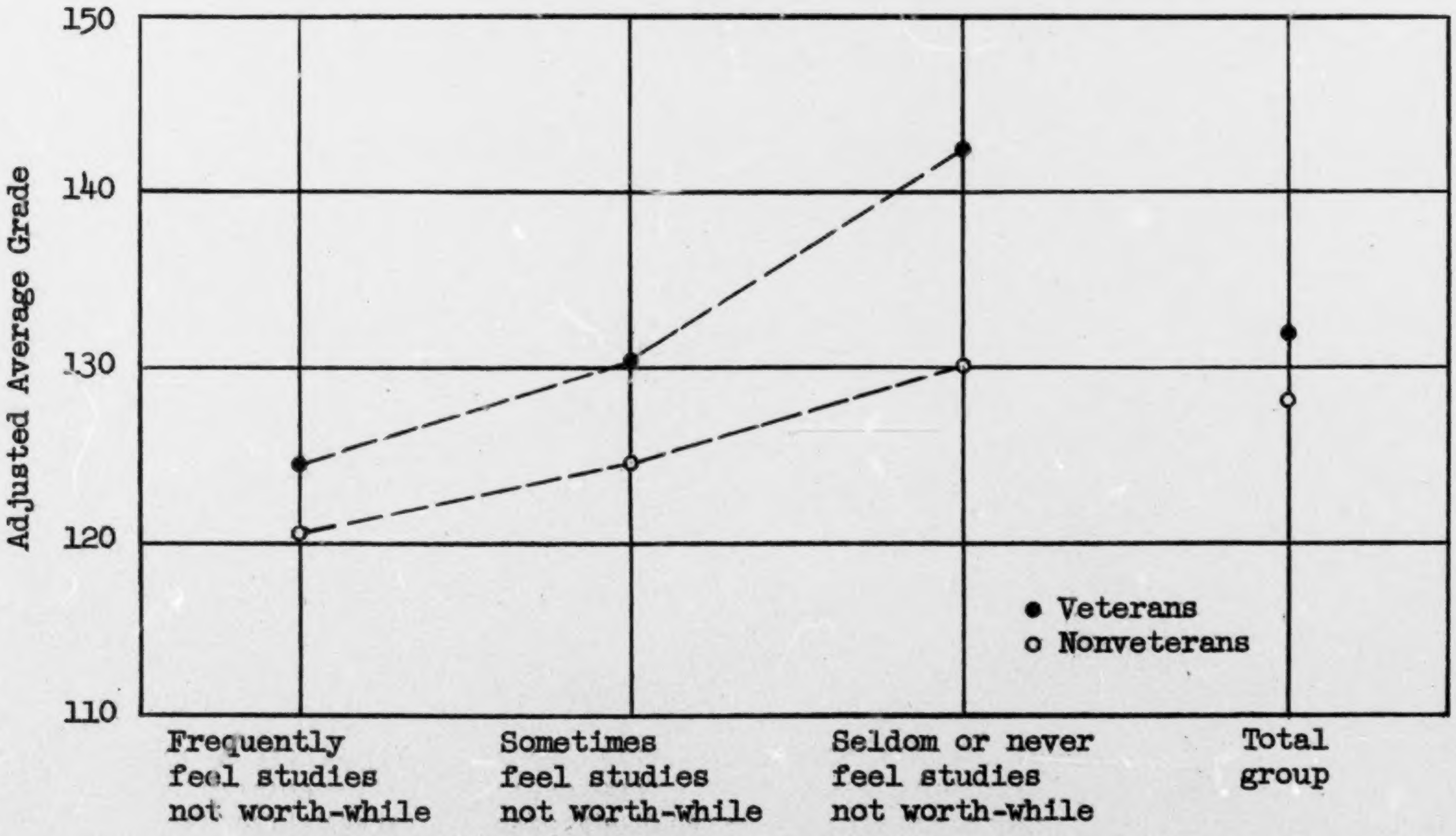
Value of College Studies. In Item 38, the student was asked, "Do you ever feel that the things you are studying in college are not really worth the time spent on them?" Three categories were used in analyzing responses to this item: (A) yes, frequently; (B) sometimes; and (C) seldom or never. In contrast with the items previously discussed, which emphasized interest and enjoyment, this item asked the student to make a more practical evaluation of his college program. Results are shown in Figure 64.

> Almost one half of the students reported that they "sometimes" doubted the value of their current studies, about one third seldom had doubts on this subject, and only about one fifth had frequent doubts. No appreciable differences were found in responses to this item between veterans, nonveterans, and women. High frequency of doubts was significantly associated with low Adjusted Average Grades for veterans; the relationship for nonveterans was less marked although in the same direction.

Almost half of the students in the median college group reported that they "sometimes" doubted the value of their courses. Roughly one third of the students reported that they seldom had misgivings about the value of their work, and about a fifth reported that they had such feelings frequently.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 64. EVALUATION OF COLLEGE STUDIES: ITEM 38

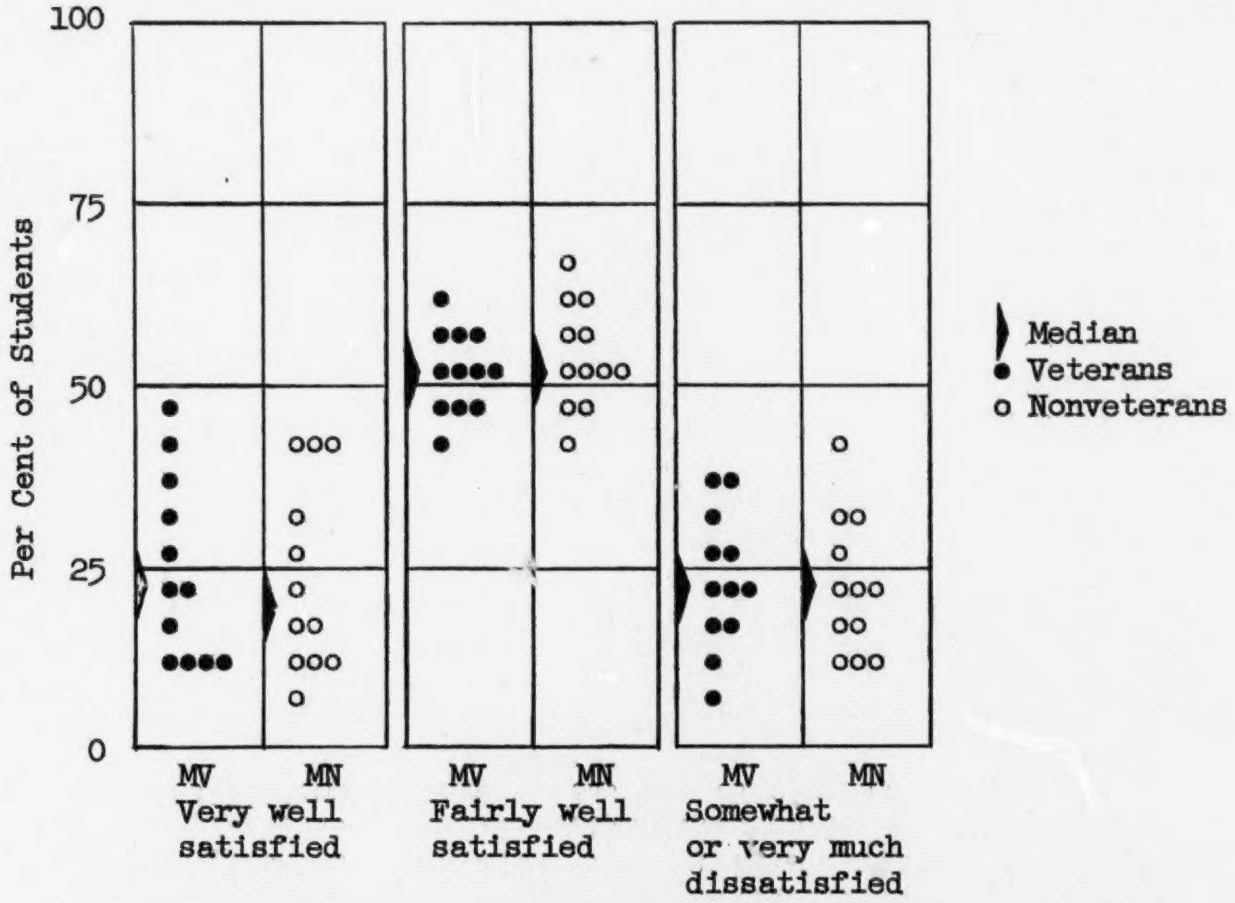
No clear difference between veterans and nonveterans appeared in the relative popularity of the three alternatives and no clear sex difference was found. On this item, the engineers from Midwest City again had the most favorable opinions, among the twelve basic groups; however, students from Taylor University excelled them in reported satisfaction, with more than half of the students in all three subgroups reporting that they seldom or never doubted the worth of what they were studying.

The relationship of this item to Adjusted Average Grade is quite distinct for the veteran groups. The most favorable response is associated with higher AAG in all twelve basic groups and the least favorable response is associated with lower AAG in all but one. For nonveterans the trend, although in the same direction, is not sufficiently consistent to be statistically significant. The medians of the mean AAG's agree with this observation; for veterans, the median of the mean AAG's for those who seldom doubt the value of their studies is above 140; for those who often feel doubts, about 125. The corresponding figures for nonveterans are 130 and 120. Examination of the significance tests in the separate college groups confirms the relationship. The veterans who report that they seldom doubt the value of their studies show a superiority in AAG which is significant at the 1% level in six of the twelve basic groups; the corresponding results for nonveterans show two differences significant at the 1% level. These figures are rather similar to those for the expression of interest in the various courses. The hypothesis that veterans are slightly more prone to question the value of their program than are nonveterans, when they are not doing well, is suggested by these findings. However, the sign test revealed that this item did not make any significant contribution in accounting for differences between veterans and nonveterans in grades adjusted for ability differences.

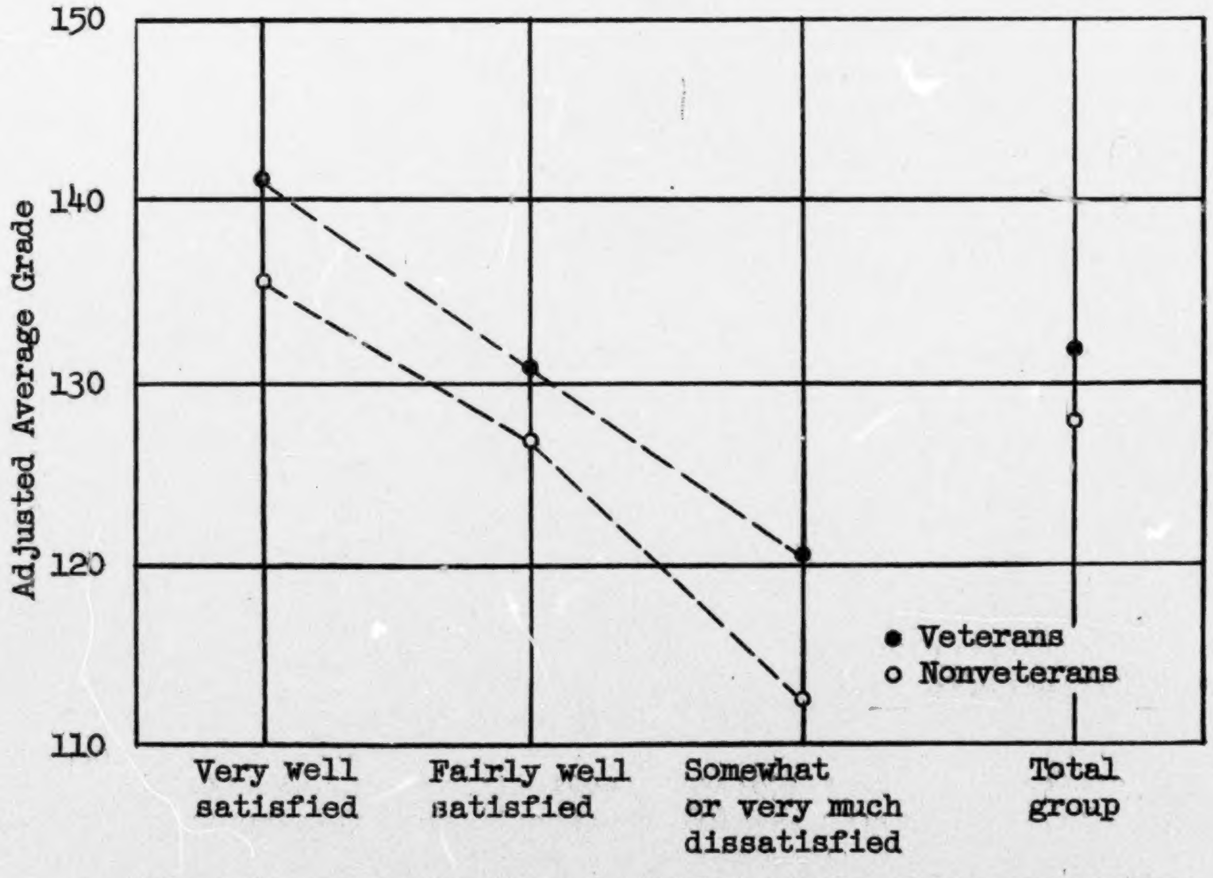
Satisfaction with Education. A further question, Item 36, asked for an overall evaluation: "On the whole, how well satisfied are you with the kind of education you are getting?" Responses were divided, for analysis, into (A) very well satisfied, (B) fairly well satisfied, and (C) somewhat or very much dissatisfied. Results are given in Figure 65.

> About half of the students reported that they were "fairly well satisfied" with their education; the remaining students were divided about equally between "very well satisfied" and "somewhat or very much dissatisfied." Male veterans, male nonveterans, and women students showed little difference in attitudes on this point. A clear association was found between greater satisfaction and higher Adjusted Average Grades.

Responses to this item showed a pattern similar to that for the preceding item (38), which deals with the worth-whileness of college study. Somewhat more than half of the students, in the median group, gave the answer, "fairly well satisfied," and somewhat less than one fourth of the students fell into each of the other two categories. As in Item 38, Taylor had the highest proportion who reported that they were very well satisfied; the engineers from Mid-



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 65. SATISFACTION WITH EDUCATION: ITEM 36

west City were next highest. The sophomore groups did not express greater satisfaction than the freshman groups from the same college on this item. No consistent difference between veterans and nonveterans appeared with respect to the attitudes expressed toward their education, nor was a consistent difference between the attitudes of men and women found.

As in the other questions in this group, a marked relationship was found between responses to this item and AAG. In the twelve basic groups, the students who reported dissatisfaction were underachievers in all 24 comparisons. Medians of the mean AAG's were about 140 for the "very well satisfied" veterans and about 120 for the dissatisfied veterans; for nonveterans the corresponding figures were about 135 and less than 115. When the relationship is studied college by college, the dissatisfied veterans are significantly low (at the 1% level) in AAG in six of the basic groups; the dissatisfied nonveterans are significantly low in four of the basic groups.

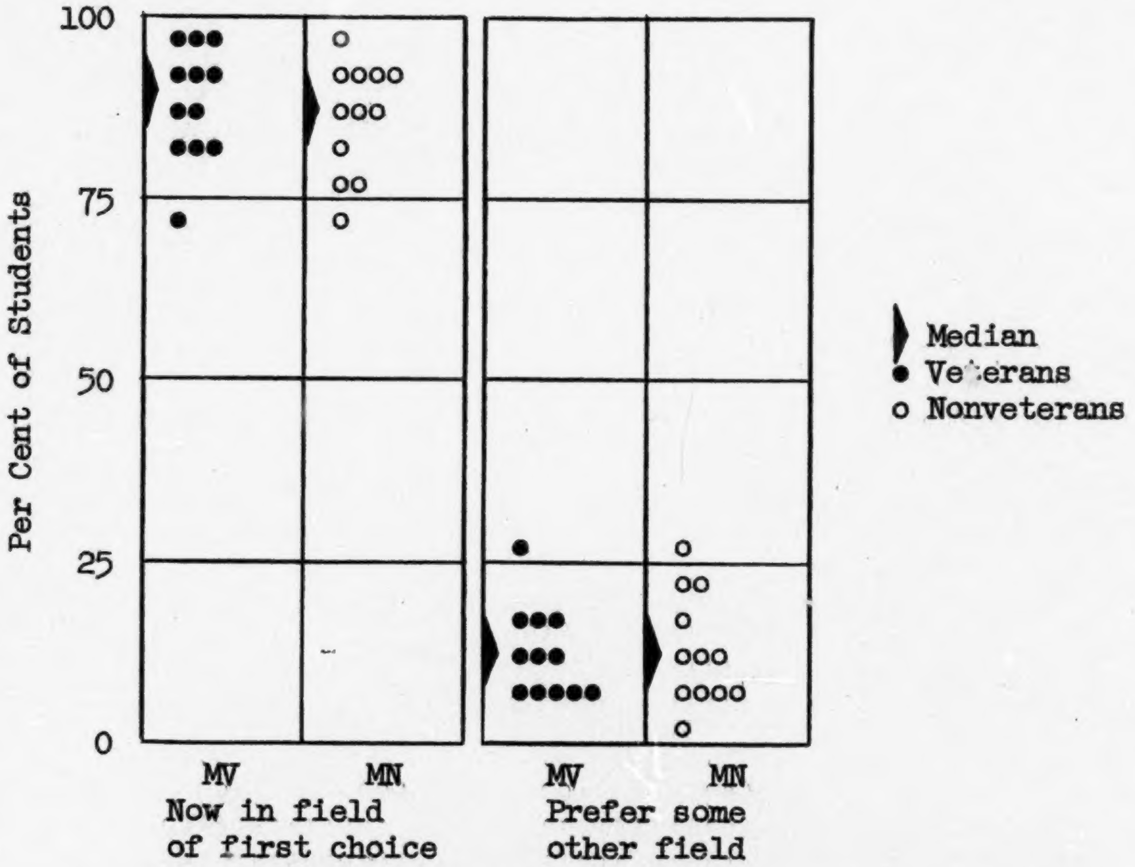
No evidence was found that the characteristic measured by this item would help to account for veteran-nonveteran differences in AAG.

Summary. In all four of the questions which asked students to evaluate their college, certain common trends appeared. Taken as a whole, the results indicated that the typical student is fairly well satisfied with his college. A substantial minority, representing perhaps one fifth of the students, appear to be somewhat dissatisfied and roughly the same proportion are rather enthusiastic about their college program. Male veterans, male nonveterans, and women are, in general, rather similar in their evaluations of their college studies. In all four items, a rather clear association between dissatisfaction and poor performance relative to ability is apparent. None of the items was useful in accounting for differences between veterans and nonveterans in Adjusted Average Grade.

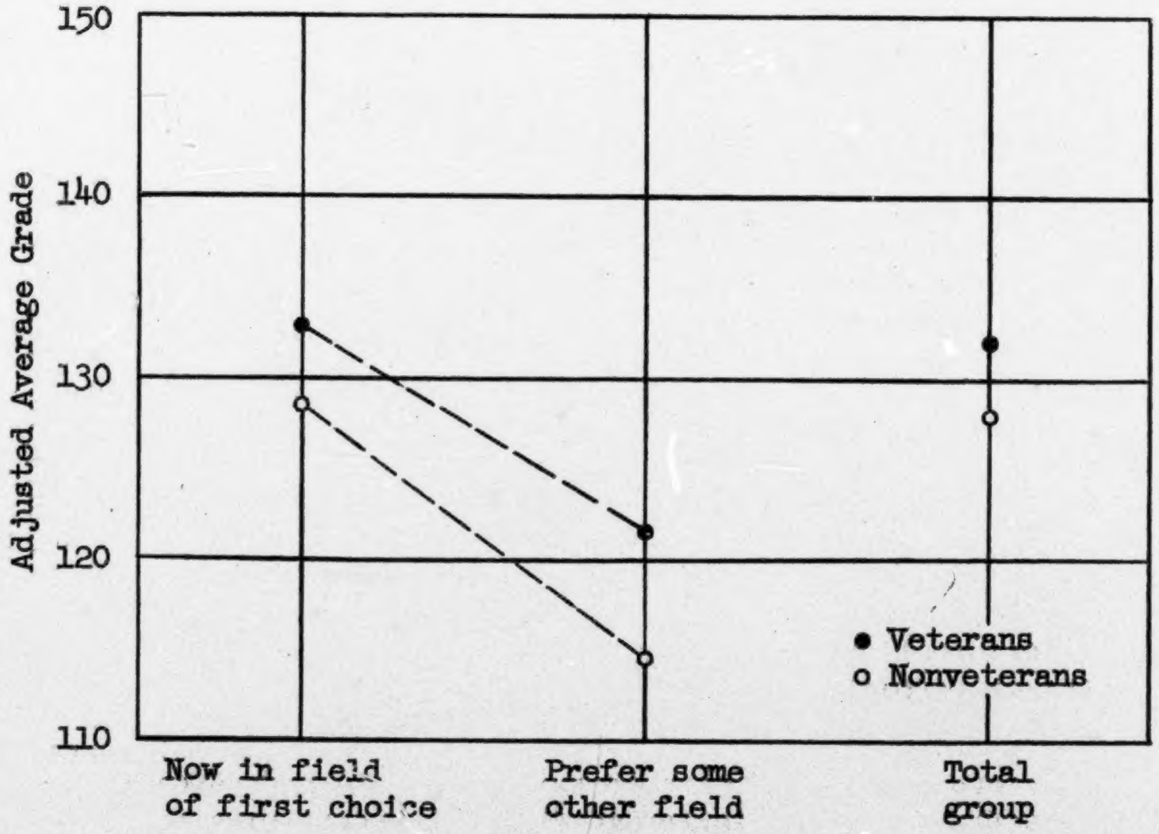
Attitude toward Present Division

Still another estimate of a student's satisfaction with his college program was provided by Item 16: "Is the school or division (e.g., arts, engineering) in which you are now studying your first choice, or would you prefer to major in some other school or division in the same institution?" The two categories used in analyzing the data for this item were (A) now in field of first choice, and (B) would prefer some other school or division. Results of this analysis are shown in Figure 66.

> Typically, almost nine students in ten prefer their own division to any other in the same institution. Students who reported that they would prefer a different division showed a clear tendency to make inferior Adjusted Average Grades.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 66. SATISFACTION WITH PRESENT SCHOOL OR DIVISION: ITEM 16

It is evident that substantially all students, both veterans and nonveterans, prefer their present division to any other. The median percentage who are in the division of their first choice is about 90 for veterans and slightly less than 90 for nonveterans, in the twelve basic groups. There was no consistent tendency for women to be either more favorable or less favorable than men in the same college; the differences which do appear in particular colleges may, of course, have some local significance.

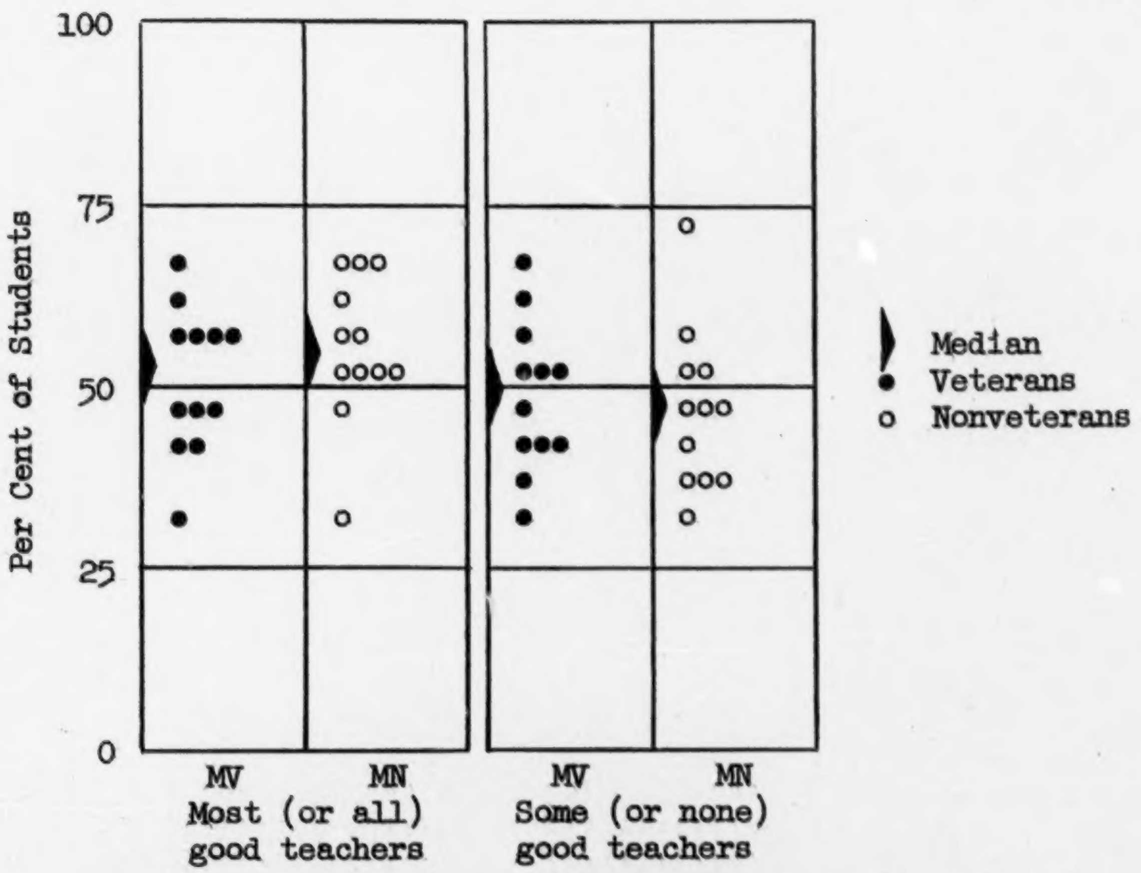
It is reasonable to expect that dissatisfaction with present division and low AAG's would go together; such is indeed the case. As shown in Figure 66, the median of the mean AAG's for veterans is slightly below 135 for the satisfied group and slightly above 120 for the dissatisfied group. The corresponding figures for nonveterans are slightly less than 130 for the satisfied students, and about 115 for the dissatisfied ones. Examination of the results college by college shows that students in the dissatisfied subgroup have a lower mean AAG than students in the satisfied group in 21 out of 24 instances, and two of the remaining comparisons were ties. Such consistency would be expected to arise by chance less than once in 100 times. Finally, individual subgroups of dissatisfied students in the twelve basic groups showed mean AAG's which were reliably different from those of the satisfied group, as follows: veterans, two at the 1% level and two at the 5% level; nonveterans, four at the 1% level. No pattern is apparent in these significant groups except that three out of six of the engineering subgroups show significant differences, as compared with six out of 18 for the liberal arts subgroups.

Attitudes toward present division are thus clearly associated with AAG. The similarity of viewpoints between veterans and nonveterans, however, makes this item useless in accounting for veteran-nonveteran differences in college achievement relative to ability.

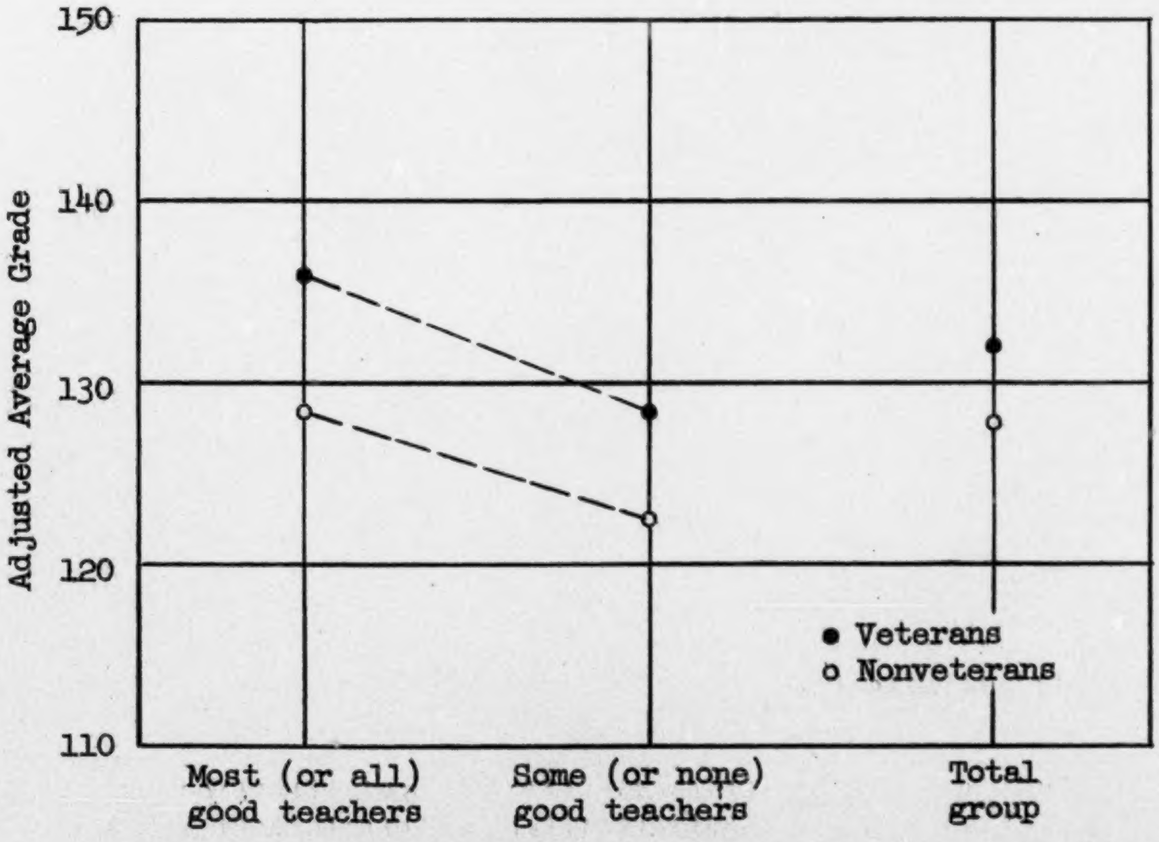
Attitude toward Faculty

Only one question was devoted to finding out what students think of their college teachers. Item 17 asked: "How would you rate, as teachers, the faculty members who have taught you this past term?" Choices were divided into (A) most, or all, are good teachers, and (B) some, or none, are good teachers. On the assumption that relationships with teachers would have an important bearing on adjustment to college, it was thought that this item might aid in understanding academic success in college. Results are given in Figure 67.

> A majority of students considered that most of their instructors were good teachers, veterans being slightly less favorable than nonveterans in their evaluations. There is a consistent relationship between attitudes toward teachers and Adjusted Average Grade in the veteran groups; in the nonveteran groups, the relationship is slightly less consistent.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 67. ATTITUDE TOWARD FACULTY: ITEM 17

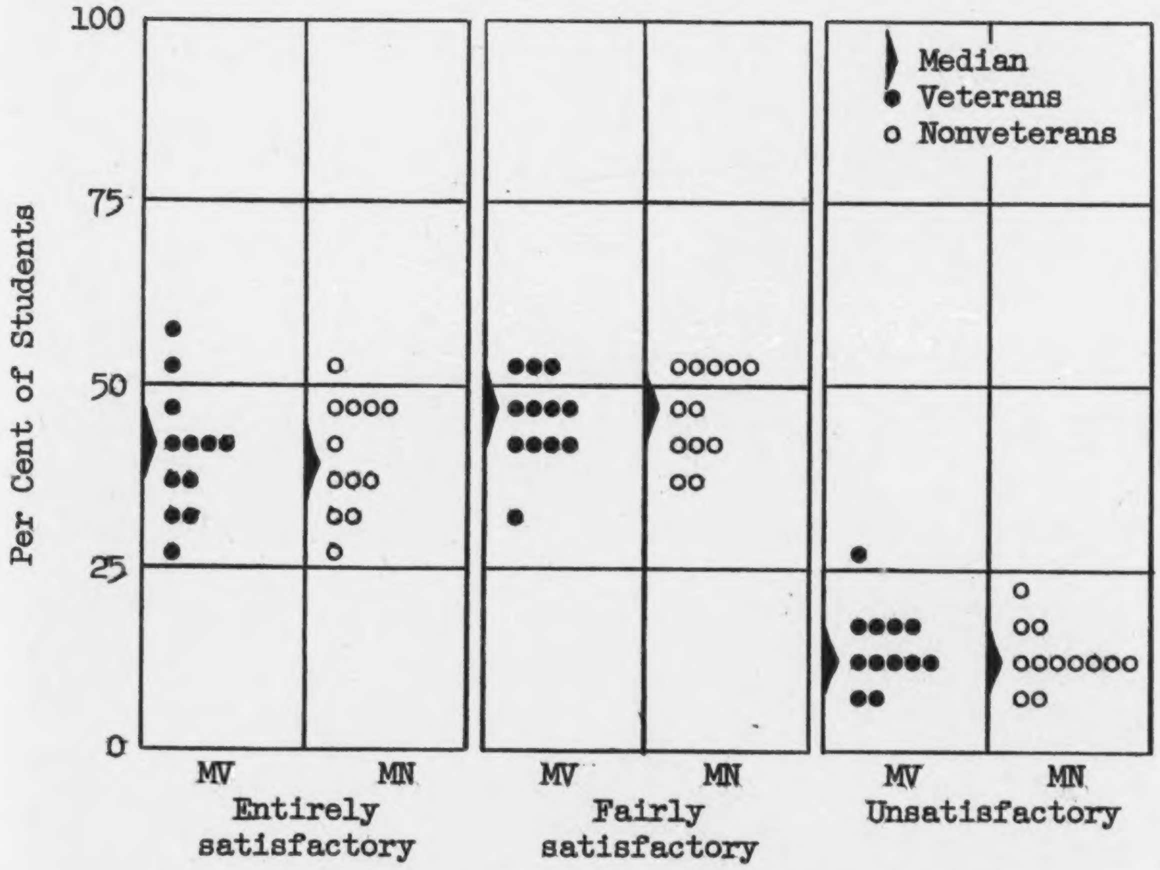
A majority of the students, both veteran and nonveteran, thought that most of their teachers were good teachers. Nonveterans were slightly more favorable than veterans in the judgments expressed; the proportion giving favorable responses was higher for nonveterans in nine of the twelve basic groups, with one tie. No consistent difference between the sophomore groups and the freshman groups appeared on this item. Women had, on the average, much the same attitude as the nonveteran men in their colleges. There was some indication that engineers were more critical of their teachers than were students in liberal arts; the engineers at Midwest City provided the only exception to this generalization. Among all the groups studied, the students at Taylor expressed the highest degree of approval of the faculty, with almost 80 per cent in the favorable category. Within the basic twelve groups, students at Harris, Adams, Douglas, and Littletown State were highest in their approval of the quality of teaching.

Attitudes toward teachers and AAG are related, as shown in the lower portion of Figure 67. The difference between the more favorable group and the less favorable group amounts to somewhat more than 5 points for both veterans and nonveterans when median AAG's are compared. The trend is more consistent for veterans, however. Veterans who reported an unfavorable attitude toward teachers had lower mean AAG's than the other veterans in all twelve groups; nonveterans who gave this response were lower in nine of the twelve groups, with one tie. When the relationship between attitude toward teachers and AAG is studied in each college group separately, only the engineering veterans at Midwest Tech and the nonveterans at Adams show a difference in AAG which is significant at the 1% level. In general, attitudes toward teachers, as expressed in this item, are apparently less closely related to AAG than are attitudes toward college studies. This question did not turn out to be related to veteran-nonveteran differences in AAG.

Evaluation of Study Facilities

One rather specific aspect of the college environment which might be related to a student's academic adjustment is availability of a place where he can study effectively. To obtain the student's own evaluation of his study place, Item 27 asked, "In general, do you have a satisfactory place to study, one that is free from noise and distraction and reasonably comfortable?" Answers were analyzed under three heads: (A) yes, entirely satisfactory; (B) fairly satisfactory; and (C) no, quite unsatisfactory. Results are shown in Figure 68.

> About one student in ten reported that his study facilities were "quite unsatisfactory." Differences on this point between veterans and nonveterans were quite small; women, however, tended to be more critical of their study facilities than the men. Lower Adjusted Average Grades were typically found for students who reported poor study environment.



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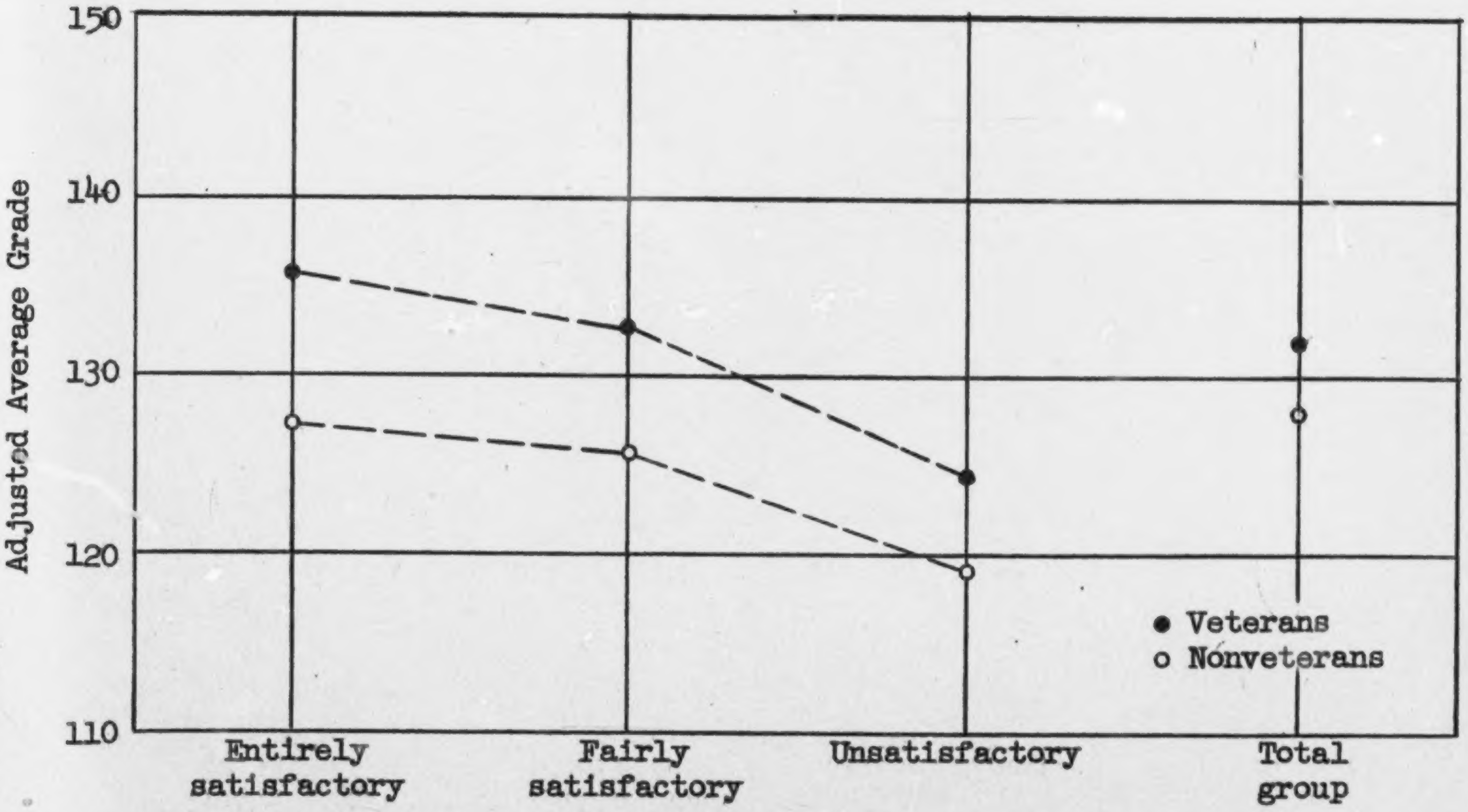


MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 68. ADEQUACY OF PLACE FOR STUDY: ITEM 27

Only a little more than 10 per cent of the students considered their study facilities "quite unsatisfactory," and about 40 per cent considered their study arrangements entirely satisfactory, in the median group. Veterans were a bit more likely to view their study arrangements as entirely satisfactory than were nonveterans; the difference was quite small, however, and may merely indicate that the veterans were more tolerant of discomfort. With one exception (Eastern City), women were less likely to consider their study place entirely satisfactory than either male veterans or male nonveterans; here again, the differences were small.

Satisfaction with study place was associated to some extent with AAG, but the relationship is apparently not very close. For veterans, the very well satisfied differed from the quite dissatisfied by only about 10 points, judging from the medians of the mean AAG's; for nonveterans the difference was somewhat smaller. Considering all of the 24 subgroups, only five comparisons show a mean AAG for the dissatisfied students which is higher than that of the corresponding satisfied group; the relationship is significant at the 1% level, when results for veterans and nonveterans are thus pooled. Within the various college groups, the dissatisfied group was significantly below average in AAG (at the 1% level) in three of the veteran groups, but in none of the nonveteran groups. Two of the three groups showing significant differences were composed of engineering students. Among the students who were entirely satisfied with their study arrangements, only the nonveterans at Adams were significantly high in AAG at the 1% level. These results indicate that the student's opinion of his study place is related in the expected direction with AAG, but that the relationship is not close. The relationship of this item to veteran-nonveteran differences in Adjusted Average Grade was found to be negligible when the sign test was applied.

Suggestions for Improving the College

In contrast to the more structured questions about the college, Item 45 simply asked the student for a free answer to the question: "Briefly, what are the main changes you would like to see made in the program or organization of education at this college, in order to help you get what you are after in a college education?" Students were also invited to make comments about Item 36 ("On the whole, how well satisfied are you with the kind of education you are getting?") and about Item 38 ("Do you ever feel that the things you are studying in college are not really worth the time spent on them?"). Thus, the student was given several opportunities to unburden himself regarding any aspect of the college program which did not fully meet his approval.

In order to reduce the comments of the students to a form suitable for mechanical tabulation, a code number was assigned to each comment in accordance with a pre-arranged scheme. A full description of the steps followed and of the precautions taken in the coding process is given in Chapter II; here it is only necessary to recall one feature which has a specific bearing on the interpretation of results. Since coding was completed for any one college before work on the next college was begun, comparisons of percentages from one college to another must be made with caution. Comparisons of responses between the first three colleges coded (Adams, Stewart, and Midwest Tech) and the remaining 13 colleges should be avoided, since a simplified code was introduced after the coding of the first three colleges was complete. Within any one college, however, comparisons of veterans and nonveterans may be made with reasonable confidence; questionnaires of these subgroups were not segregated before coding.

Number of Comments. In analyzing the coded responses, attention was given to the number of suggestions made by each student, since it was thought that any marked differences between veterans and nonveterans in tendency to complain would be found by this kind of analysis. Results on which this discussion is based are presented in Appendix Table 45-1.

> Veterans, nonveterans, and women were about equally likely to refrain from making suggestions for improving their college. No general tendency was found for the number of suggestions made to be related to Adjusted Average Grade.

Students who gave no relevant response may be considered first. No clear-cut tendency was found for male veterans, male nonveterans, or women to differ in the proportion offering no suggestions. On the average, about one student in seven made no response which was codable under the procedure used.

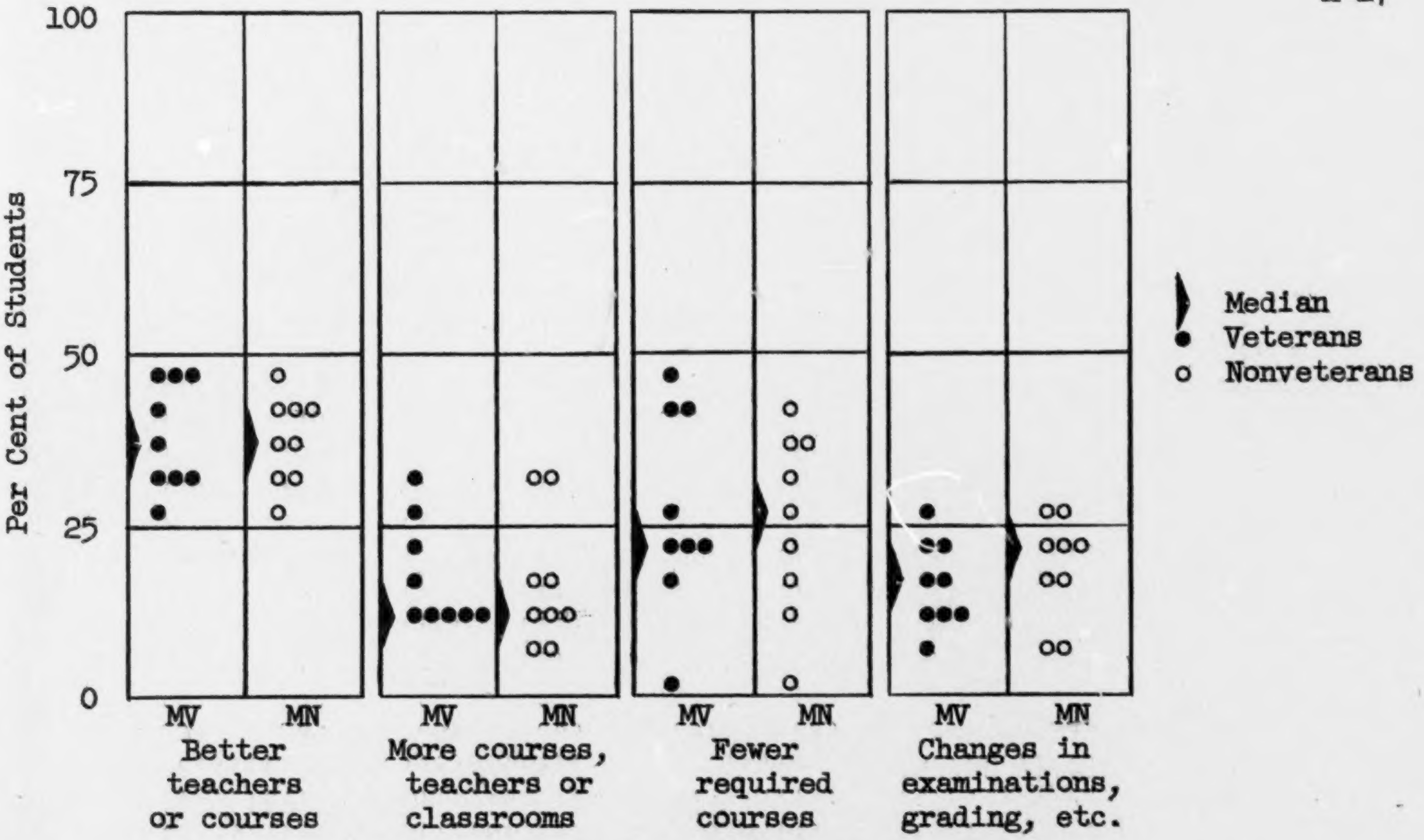
Students who gave no comments in general did not differ in mean AAG from the remainder of the group to which they belonged. In the veteran subgroups, the engineers at Middle State who made no comments were significantly high in AAG at the 1% level; the engineers at Midwest Tech and freshmen at Adams who made no comments were significantly high at the 5% level. None of the nonveteran subgroups showed a significant relationship.

Consideration of the results for students who gave three or more suggestions, and comparisons of the average number of suggestions made by students in various college groups with their expressions of dissatisfaction on precoded items indicated that the total number of suggestions made does not provide an index of satisfaction with the college and its program. The sign test based on all four response categories indicated that the number of coded responses does not aid in interpreting veteran-nonveteran differences.

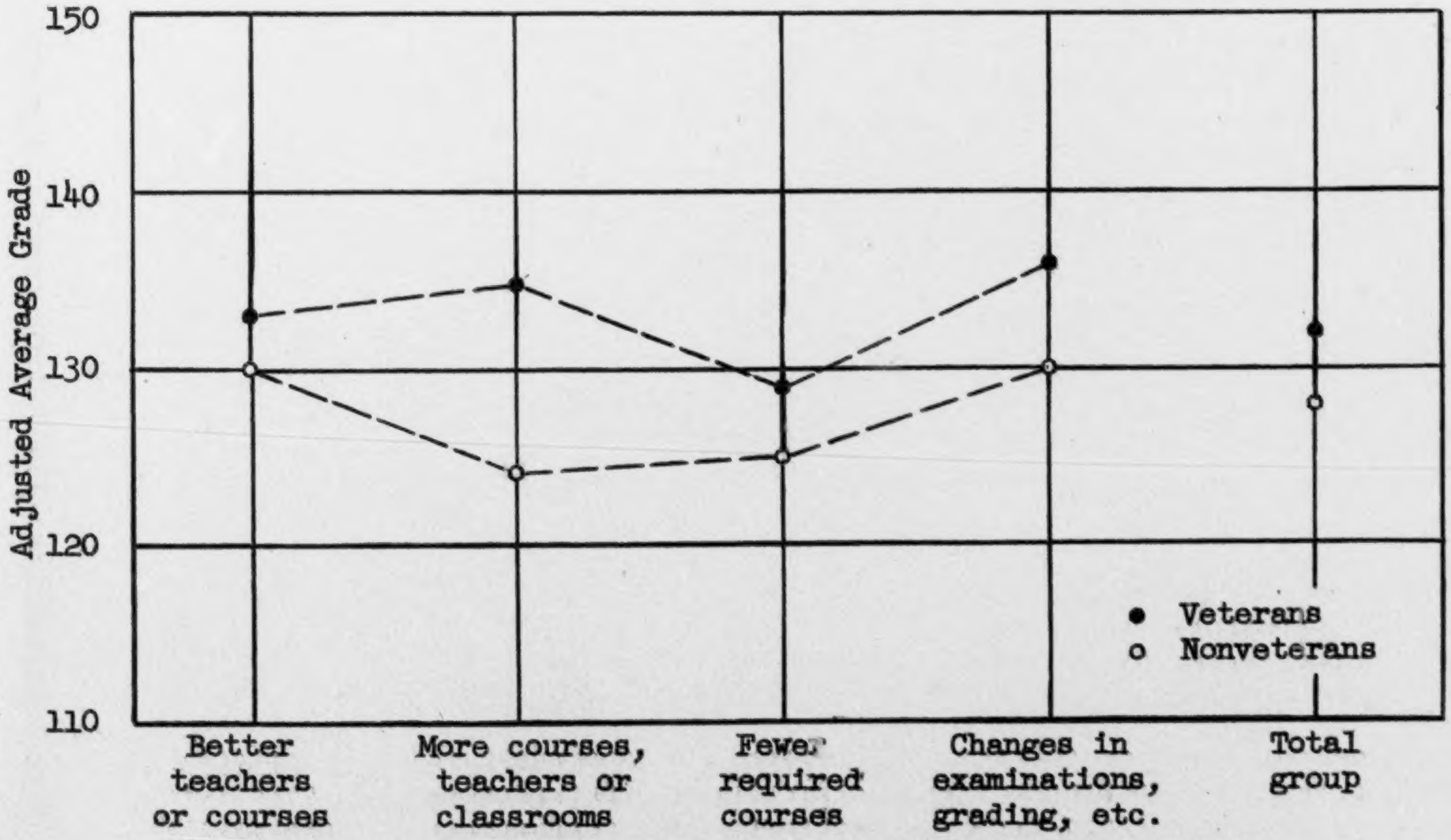
Kinds of Suggestions Most Frequently Made. When coded responses were examined in detail, it was found that four kinds of suggestions were distinctly more popular than any others. Indeed, the two most popular codes in every one of the 56 subgroups having questionnaire data were found to be among these four categories. Accordingly, attention in the discussion will be focussed on these four major types of suggestions. The four most popular categories were as follows: (A) need for better courses, instructors, or instruction; (B) need for more courses, teachers, or classrooms; (C) need for fewer or more appropriate required courses, or for more freedom in electives; and (D) need for changes in general academic requirements, including comments on grading systems and examinations. Results for the three colleges coded before the consolidation of categories (see Chapter II-16, 17, and Appendix C3) are shown in the upper portion of Appendix Table 45-2 (Part 1), and results for the thirteen colleges coded after the revision, in Appendix Table 45-2 (Part 2). Figure 69 shows the findings graphically for the nine basic groups coded according to the revised plan.

> Among the diverse suggestions offered by the students for improving their colleges, certain recurrent themes were present--"more and better teachers," "fewer required courses," "less stress on grades and examinations." More than one student in three wanted better courses, instructors or instruction; about one in seven wanted more courses, teachers, or classrooms; about one in four suggested that fewer (or different) required courses were desirable; and about one in six wanted various changes in general requirements, particularly changes in the system of examinations and grading. In general, there was little evidence of any trend for veterans to offer more or fewer suggestions than nonveterans. Women were slightly less likely to criticize quality of instructors and instruction than were the men. In three of the colleges women were considerably more likely than men to ask for more courses, instructors, or classrooms. Veterans who suggested fewer or different required courses tended to be low in Adjusted Average Grade; otherwise, no clear-cut tendency was found for an association between kind of suggestion made and AAG. Among the comments offered less frequently, nonveterans were slightly but consistently more likely to suggest better guidance and placement services.

Category A: Need for Better Courses, Instructors, or Instruction. The meaning of Category A may be clarified by considering some of the comments to which this code was assigned. The great majority of these comments were concerned with the college teachers rather than with method of instruction or course content. Many comments merely requested "better" or "more competent" instructors; others, however, were considerably more specific. Among the weaknesses noted by students were: lack of interest in students--"Very few professors seem to care if we pass or fail"; lack of interest in subject--"Instructors should show some interest in their studies"; lack of age and experience--"Some...know little more than the student"; excessive age--"The old instructors who are coasting on past laurels should be shaken up"; inability to get subject across--"Employ instructors not merely for their knowledge, but also for their ability to teach"; lack of contact with student ideas--"The professors with doctors degrees are rather hard to comprehend"; excessive narrowness--"I'm getting the turkey but not the trimmings...I'd like to meet a few instructors who have a little more than just the course to give"; and excessive talkativeness--"They gas in an unending stream--usually about every irrelevant topic save what is pertinent to the course."



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 69. MOST FREQUENT SUGGESTIONS FOR IMPROVING THE COLLEGE: ITEM 45-2 (PART 2)*

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*Note that only nine of the twelve basic groups were used in constructing this figure.

Comments about method and content included suggestions: that more opportunity for student discussion be provided--"Too many lecture courses"; that less emphasis be placed on details and memorization--"Too much emphasis on details...particularly english (sic) courses"; that teachers stick more closely to the textbook--"I would like to have professors and other instructors follow very close to the textbook, regardless of how they feel toward the situation"; and that the maturity of students be recognized--"Some of the courses are conducted on a high school level."

Some idea of the range of comments coded under Category A may be obtained from the following examples:

> "The courses given in Economics are not adequate to insure a good position on graduation."
>
> "There a few teachers here which I believe would be beneficient if they were discharged. Some don't care about my welfare. I asked some questions in class and they refused to answer them."
>
> "Higher salaries for teachers so that I know I am getting the best possible supervision in my studies."
>
> "To have the instructors stop trying to influence the students. For the instructors to recognize the students as college students rather than grade school students."
>
> "I'd fire four out of five teachers."
>
> "Actually they [English teachers] try to tell you how you felt under combat conditions."
>
> "Choose instructors that are enthusiastic, well-trained, and interested in putting across their subject effectively and clearly."
>
> "Totally revise teaching methods so as to embody the methods of instruction used by the Army, such as: 1) conferences replacing lectures; 2) use of instructional aids...; 3) eliminate note taking--use mimeographed outlines and summaries; 4) give teachers instruction in how to teach a group of men; 5) provide a 'scope' or objective for each course."

The popularity of comments about instructors and instruction is clearly evident in Figure 69. Somewhat more than one third of the men in the typical basic group had some such comment to make. No noticeable difference appears between veterans and nonveterans in this respect; but women generally gave fewer comments in this area than the men. Students who made comments coded in Category A did not differ markedly or consistently in AAG from other students in their college groups; on the whole, however, they are slightly superior in AAG. Since comments about instruction were about equally prevalent for veterans and nonveterans, and since the students who made such comments were pretty much a cross-section of their groups in AAG, the frequency of such comments does not aid in accounting for veteran-nonveteran differences in AAG.

Category B: Need for More Courses, Teachers, or Classrooms. Although suggestions that classes be smaller and college facilities less crowded undoubtedly constituted the largest single group of comments coded in Category B, a considerable number presented requests that the college enter new fields or develop further offerings in existing fields. The latter group of suggestions necessarily varied in content from college to college; for example, requests for a course in business administration would not arise in a university which had such a program in operation. The following comments may illustrate the scope of the comments included under this code:

"Crowded conditions should be abolished."

"Smaller classes."

"More courses in art and music."

"More engineering courses. Many who wish to get into that college are stopped by crowded conditions."

"The absence of courses relating to business and business administration might force me to attend graduate school."

"Public speaking class."

"I think there should be a general two, three, or four year course covering subjects of general interest, say, to all women--women who intend and desire to marry soon after college; courses to improve a girl's mind--make her more fit to be a good wife and mother; and, if possible, also to prepare her in some way to be able to support herself if the need arises."

"Some specialized training for professions such as radio announcing, directing, etc., selling, business management--more practical courses."

As in Category A, veterans and nonveterans showed rather similar performance as far as responses coded in this area are concerned. As shown in the upper part of Figure 69, the median proportion is nearly the same (about 15 per cent) for both subgroups. In three of the nine groups in which women students were included, the proportion of women who asked the college to offer more was distinctly higher than was true in either of the male groups. Further comparisons of men and women students on their attitude toward the adequacy of college programs should be made when college facilities are less heavily burdened.

Students who commented about overcrowding and inadequate offerings did not differ greatly in their mean AAG's from the total groups to which they belonged, although there was some suggestion that the veterans who made comments coded in Category B were slightly superior, and nonveterans in the same category were inferior in AAG. There is no reason to believe that the frequency of responses about crowded conditions aids in accounting for veteran-nonveteran differences in AAG.

Category C: Need for Fewer or Different Required Courses. The numerous comments expressing a desire for fewer or different required courses (Category C) indicate that this topic is very much a live issue as far as students are concerned. Although many of the comments were merely statements like, "Required courses not worth-while," or, "Not require a foreign language," other comments offered certain clues as to the reason for the objections. A fair number of comments disparaged the objectionable requirements; they were compared in value with "the wart on a pickle" and characterized as "silly," "stupid," "waste of time," and "irrevelant" (sic) by various students. Other students saw them as obstacles in the way of spending all their time on the subject in which they wished to specialize. As one student put it, "I think a person should take just the courses that pertains (sic) to the profession which he or she wishes to go in. For instance, why take a foreign language if you plan to enter Air Transportation just in the U. S., also Botany." Another young man, who was planning to be a research physicist, said, "Some of the courses are just cultural studies not needed in the phase of work I intend to do." A few students appeared to object to the principle involved in required courses: "I feel that it is not fair to force a person to spend his money for something he doesn't enjoy and has no interest in." Another said, "_____ University has a supreme contempt for the student's ability to know what he wants to learn." One student wrote, "Courses should be made to suit the student rather than the university." Others felt that the required courses were repeating material that they already knew. In other instances, parental attitudes complicated the picture: "I am in liberal arts and want to be in business but parents won't permit the change." Another wrote, "My father and I have decided what courses I need." Finally, a sizeable group mentioned that required courses were rather difficult. Perhaps one example will suffice: "I personally think that people should be able to take the courses that are necessary to pursue one's profession instead of being required to take harder courses by the university and then making the course so darn rough that fellows can't stand the grind and they quit. I'll never quit....."

As shown in Figure 69, comments regarding required courses varied greatly among the colleges, ranging from less than 5 per cent for Midwest City engineers to almost one half in several schools. No marked differences in attitudes on this matter were found between veterans and nonveterans, the median in the nine selected groups being about 25 per cent for both subgroups. Although veterans might have been expected to be more critical of required courses than nonveterans, the results for this category show a slightly higher median for the nonveterans.

A rather striking relationship of this category to AAG appears in the case of veterans; in only one of the nine selected college groups did the veterans who commented on required courses earn AAG's as high as those who did not. For nonveterans, on the other hand, no such relationship appears. These results suggest that veterans' attitudes toward requirements depend to some extent upon how well they are doing. It should be added, however, that in none of the basic groups considered individually was there a statistically significant relationship between frequency of comment on required courses and AAG. The results for this category indicate that it is not useful in accounting for veteran-nonveteran differences in AAG.

Category D: Need for Changes in General Academic Requirements. Changes in general academic requirements, which were coded in Category D, necessarily involved a rather miscellaneous set of comments. Although the specific comments varied from college to college, the bulk of the comments were concerned with the system of grading and examinations. A number of comments about the curriculum as a whole were also included here; to some extent these comments tended to overlap in general meaning with criticisms of required courses included in Category C.

Considerable feeling was expressed that too much stress was being placed on grades. As one student put it, "Emphasis taken away from commercial-like race for good marks, and place more emphasis on general absorption." One young women wrote, "I realize grades are unimportant but too much emphasis is placed upon them because they cause one to take 'cinch' courses instead of useful courses." Students also felt that grading standards varied from course to course. For example, "I would like course requirements to be more uniform. As it is, some courses require only attendance, while others (by far the majority) seem to assume that the student takes no other courses whatsoever." Another student said, "Doing the same work for two different instructors sometimes means the difference between an A and a C." One student offered the suggestion that "One Prof. should teach everyone--so that they are all on the same level." Numerous other comments on the grading system have a familiar sound: "There should be two grades: Passing and failing"; "System of grading on a curve is not helpful"; "It is my strong belief that in a large class the professor has a quota of students that will [fail] "; "Elimination of grading system"; "Grades are unnecessary in the case of any student with common sense enough to evaluate his own ability"; "Lay less stress on scholastic work--thereby enabling more time on extracurricular activities"; and "Grading by the improvements made by each individual during a semester's time, not the class as a whole."

Adverse comment was also directed toward examinations. In addition to the comment that they should be fairer, students seemed anxious to have them: less difficult--"They are not a test of our ability but some professor's crossword puzzle"; less often--"It seems I'm always studing for a test"; more often--"One exam in one subject for an entire grading period is not fair"; administered under careful control--"Cut out the cheating by other pupils. Although the instructors see this cheating, they never apprehend the person"; and frequently revised--"Change the tests from time to time because...certain groups have files of these tests." Some students expressed a desire for proficiency examinations; for example, "I would establish tests to determine a student's foreknowledge so he wouldn't have to take courses in college covering material he already knows." It is not surprising that some students favored the abolition of examinations for various reasons; one advocated "Discontinuance of end term examinations as they take two weeks of instruction from the term."

A few examples will illustrate the kind of general comments about the academic program which were coded in Category D rather than Category C.

> "More time for cultural courses or courses of a general nature."
>
> "I would prefer to take an even broader course than the B.A. offers."

"...take less courses so I could learn more thoroughly the courses I do take."

"Education is too general."

Comments falling within Category D were more popular with nonveterans than with veterans in a majority of the nine selected groups. The middle value of the percentages was about 20 for nonveterans and 15 for veterans. No consistent difference in frequency of response was found between women and the two male groups in the nine colleges where both men and women were studied.

The AAG's for students making comments along the line of Category D did not differ markedly from those of the total group to which they belonged, and in none of the nine selected groups was there a statistically significant difference in mean AAG between students making such comments and those not doing so. There is accordingly no reason to believe that this code is useful in accounting for differences between veterans and nonveterans in AAG.

Additional Comments. The four categories next highest in popularity were as follows: (E) need for better integration of existing courses; (F) need for reduction of difficulty of certain courses; (G) need for closer student-faculty relationship; and (H) need for better guidance, counselling, and placement. Detailed results for these responses are given in the lower portion of Appendix Table 45-2 (Part 1) and in Appendix Table 45-2 (Part 3).

Students whose suggestions fell into Category E (better integration of courses) made such comments as: "Too much redundancy--not enough integration...I have not learned anything that I hadn't already been exposed to before coming to college"; "Separate courses, such as social science and biology, could be more coordinated to provide a better insight into the interrelationship of areas of subject matter."

Comments relating to course difficulty, Category F, often referred to time necessary to fulfill assignments or to excessive amount of material covered. Thus: "Some courses require too much work for too little benefit"; "Assignments too heavy to lead a well-balanced life"; "Need slowing down on speed--a little less pressure."

Of those who wanted closer student-faculty relations, Category G, some had in mind the desire for more personal interest on the part of the faculty and others the wish for the intellectual stimulation of an exchange of ideas. Examples of students' comments along these lines are: "More friendly relations between the faculty and students'; "The extremely impersonal and objective treatment of students often proves discouraging"; and "More personal contact with instructors and professors--opportunities for bull sessions--informal gatherings and chances to talk on no set subject with small groups and instructors whose thinking you admire..."

Students who expressed a need for better guidance, counselling or placement (Category H) wanted both educational and vocational guidance. Two of the more specific statements were: "A more personal and efficient advisor system would help explain opportunities for scholarships, requirements for certain careers, etc." and "Complete, specific outlines of courses required and usually elected for the various majors with a list of occupations, vocations, etc., closely related to the course of study [are needed]."

For these four categories it is necessary to note only that the great majority of the percentages are less than ten, and that except for a small but consistent tendency for more nonveterans than veterans to suggest better guidance and placement, no consistent difference appears between veterans and nonveterans with respect to frequency of comment on these codes.

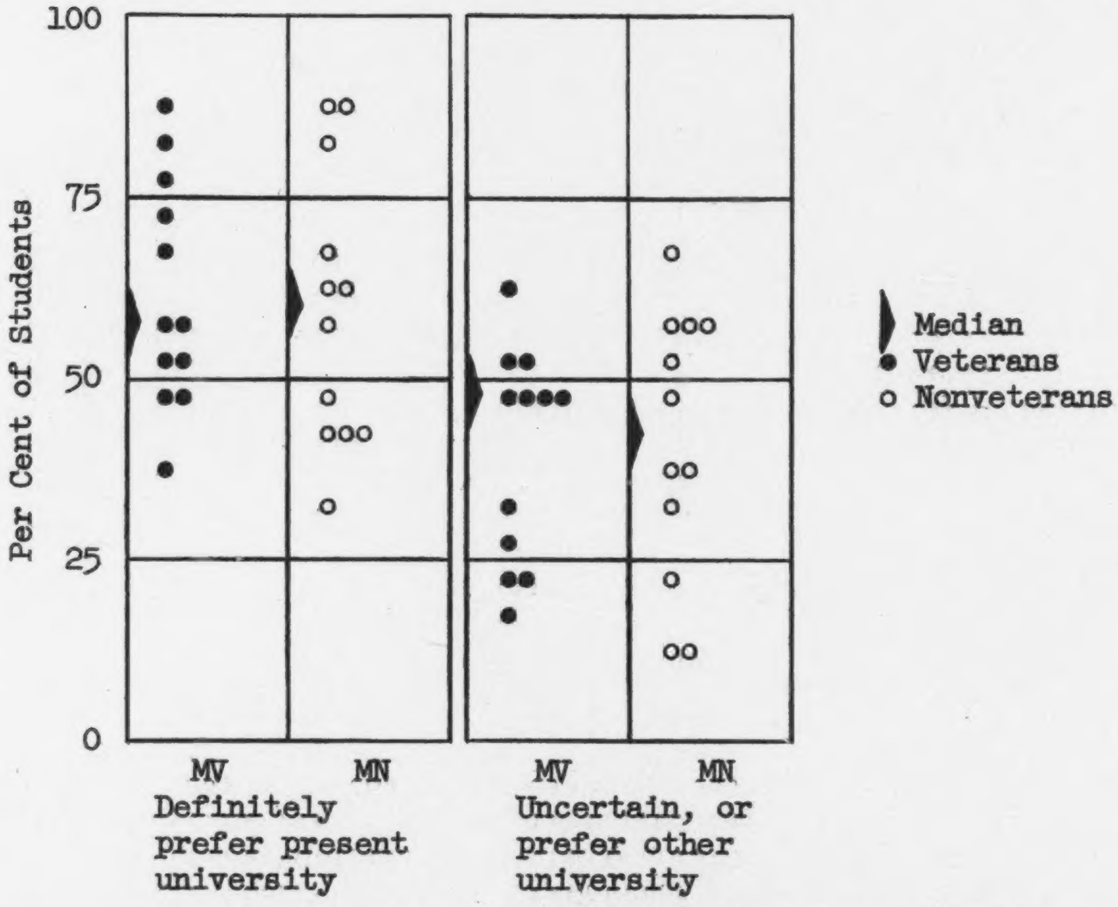
No consistent relationship with AAG appears for the nine selected groups. Of the more than 100 significance tests made regarding the relationship of such responses in these four categories to AAG in the 16 groups for which AAG was computed, one was significant at the 1% level and four others were significant at the 5% level.

Preference for Own University

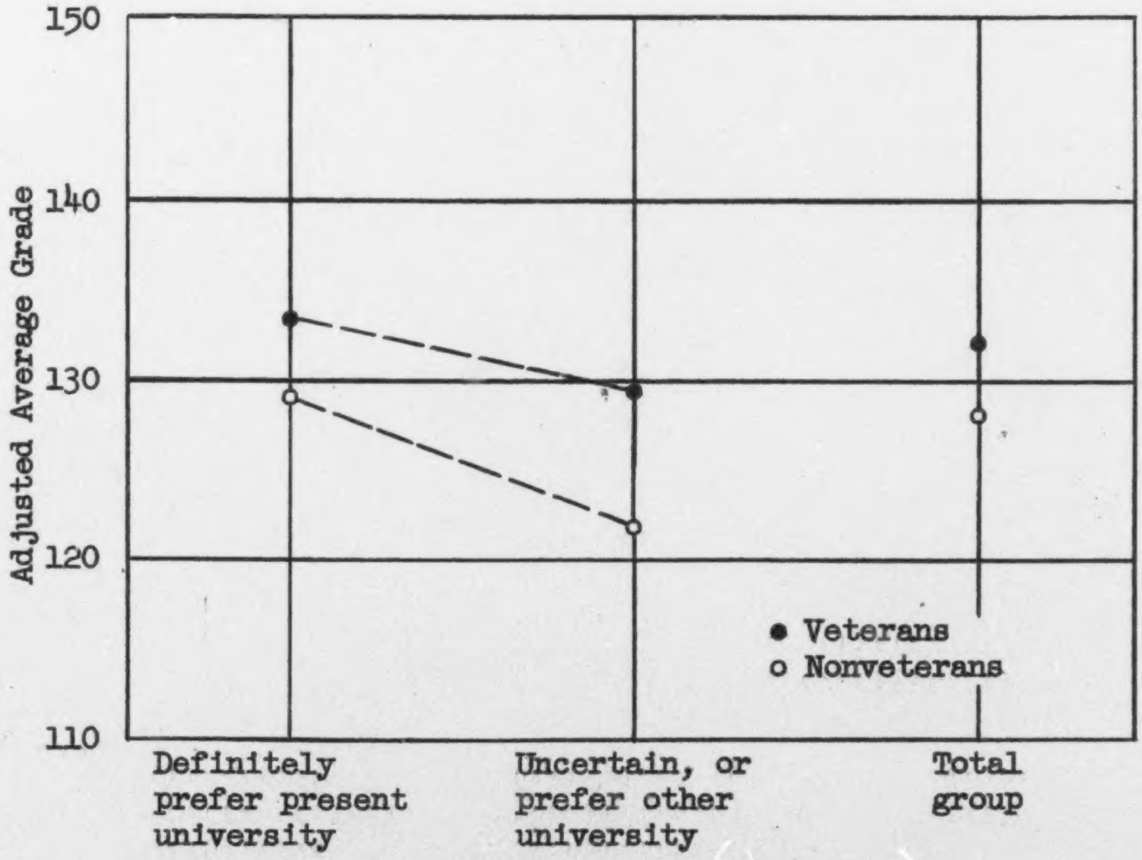
In view of all the various comments given by students, it is pertinent to inquire, as was done in Item 15, "If you could be admitted to (and could get housing at) any other university you might choose, do you think you would still want to attend the institution at which you are now studying?" To isolate out the "hard core" of completely loyal students, only those who definitely would still want to attend the same university were put in Category A; all others were assigned to Category B. Thus Category A represents those students who would definitely prefer their alma mater to any other college. Results for this item are given in Figure 70.

> The majority of students in the typical group prefer their own college to any other; there is marked variation among the colleges in this respect, however. While male veterans and nonveterans expressed similar opinions, women were somewhat more favorable in their attitudes toward their college. In general, the students who prefer their own college tend to make slightly superior Adjusted Average Grades.

One striking feature of the upper part of Figure 70 is the spread between the lowest values and the highest. Of more general significance, however, is the fact that in the typical college among the basic twelve, a majority, both of veterans and nonveterans, regard their present college as their first choice. Veterans and nonveterans are about equally favorable to their own college. There is some indication that sophomores were slightly more favorable to their college than the corresponding freshman groups; a higher proportion chose the favorable category in seven out of nine comparisons. Some fairly marked differences appear between the attitudes of women and men in particular colleges, with the over-all results indicating that women are somewhat more likely to prefer their present college to any other.



PER CENT CHOOSING DESIGNATED CATEGORIES IN EACH COLLEGE



MEAN AAG OF MEDIAN COLLEGE GROUP FOR SPECIFIED CATEGORIES

FIGURE 70. SATISFACTION WITH PRESENT UNIVERSITY: ITEM 15

This item is associated to a moderate degree with AAG, as shown in Figure 70. The group which prefers its own college to any other has an advantage in the median AAG value which amounts to slightly less than 5 points for veteran students and slightly more than 5 points for nonveterans. The consistency of the advantage for the satisfied group is apparent in both veteran and nonveteran subgroups in the twelve basic groups. When the mean AAG's for the less satisfied students are compared with those of the better satisfied students in the same subgroup, 17 of the 24 comparisons favor the better satisfied students, and there are three ties. This result is significantly different from chance expectation at the 5% level. However, when the relationship of over-all satisfaction with the college and AAG is examined for each subgroup separately, the difference between the less satisfied students and the more satisfied students is significant at the 1% level in only one instance and at the 5% level in five other instances.

The slight differences between veterans and nonveterans on this item and the relatively weak association of the item with AAG make it evident that this item does not contribute to our understanding of veteran-nonveteran differences in AAG.

Conclusions

Male veterans and male nonveterans held quite similar attitudes toward their college and its program. Differences in details appeared; for example, veterans tended to be slightly less favorable in their attitudes toward instructors. Fairly distinct differences appeared on various items in particular college groups, but statistically significant trends did not appear. Women showed attitudes which were similar to those held by the men. Here again, the trends were not consistent enough to be statistically significant, but women were somewhat more likely to regard their present college as their first choice, and were slightly more favorable in attitudes toward instructors than the men. With regard to study facilities, male veterans were slightly less likely to be dissatisfied, and women were less likely to be completely satisfied. Taken as a whole, the similarities between the groups are more striking than the differences. This generalization does not necessarily hold, of course, for each college group; the specific differences in attitudes between veterans, nonveterans, and women in a particular institution may be quite meaningful in terms of its traditions and policies.

The degree of satisfaction with various aspects of the college program varied from college to college and from item to item. Using the median value among the twelve basic groups, the following picture emerged: Slightly more than half of the students reported that they were "fairly well satisfied" with the kind of education they were getting; the others divided about equally between "very well satisfied" and "somewhat or very much dissatisfied." About one third of the students reported that they "seldom or never" had misgivings about the value of their courses, while only one fifth "frequently" had such doubts. The majority of students considered that most or all of their instructors were good teachers. A preference for their own university to any other was expressed by a majority of students, and nine students in ten preferred their present division within the university to any other.

On the basis of the middle group among nine selected groups, a number of additional points may be made. When asked how the college might be changed to help them get what they were after in a college education, only one student in seven made no suggestion. Popular types of suggestions included: better instructors, instruction and courses (one student in three); fewer, or different, required courses (one student in four); changes in general requirements, especially with regard to grades and examinations (one student in six); and more courses, teachers, or classrooms (one student in seven).

In general, a clear association was found between satisfaction with the college and superior Adjusted Average Grades. This was true whether satisfaction was expressed in terms of interest in present courses, enjoyment of present studies, frequency of misgivings about value of college studies, general satisfaction with the education being obtained, preference for present division, satisfaction with place to study, and preference for present university. A consistent tendency was found for attitudes toward instructors and AAG to be related insofar as veterans were concerned; the relationship in the nonveteran subgroups, although in the same direction, was not statistically significant.

The implications of these results are not clear. The fact that AAG's are rather closely related to actual grades suggests that poor academic achievement may color a student's outlook, to a greater or less extent, on all of these matters. On the other hand, the hypothesis that dissatisfied students do not work as hard or as effectively as their more contented fellow-students is quite plausible.

The type of suggestion for improving the college which a student made was not, typically, related to AAG. Veterans who suggested fewer or different required courses showed some tendency to earn lower AAG's; however, no similar relationship was found for nonveterans and none of the tests for this category in the separate subgroups turned out to be significant. It would appear that the particular topics used in classifying the suggestion were matters of concern both to overachievers and underachievers.

The similarity in attitudes expressed by veterans and nonveterans toward their college and its program make it unlikely that these items would be helpful in accounting for veteran-nonveteran differences in AAG; application of the sign test to the various items confirms this deduction.

RB-50-20

RESEARCH BULLETIN

ADJUSTMENT TO COLLEGE

A STUDY OF 10,000 VETERAN AND NON-VETERAN STUDENTS IN 16 AMERICAN COLLEGES

Appendix A. Detailed Results of Questionnaire Analysis

Norman Frederiksen
and
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Educational Testing Service

27, 1950

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SUMMARY GUIDE TO INTERPRETATION OF APPENDIX TABLES 6(b) THROUGH 46

Statement of Item:

The stem of each item is, in general, quoted directly from the questionnaire. The response categories shown are in some cases rephrasings of the alternatives as printed in the questionnaire; in other cases, two or more of the alternatives have been combined to form a response category, "No Response" being treated as one alternative. The numbers in parentheses following the response categories refer to the alternatives on the questionnaire included in each category. Where no numbers follow the category, the item provided for free answers rather than fixed alternatives.

Headings of Table:

No Response includes all omissions of the particular item by students who answered other items of the questionnaire.

Mean AAG refers to the average Adjusted Average Grade earned by students in the designated subgroup who chose the response in question (Cf. p. II-28).

MV, MN, FN refer to Male Veterans, Male Nonveterans, and Female Nonveterans respectively.

Abbreviations Used in Designating Universities (Cf. pp II-5 and II-6):

CS = Central State
E = Evans
WS = Western State
M = Miller
S = Stewart
H = Harris
A = Adams
D = Douglas
LS = Littletown State
MC = Midwest City
EC = Eastern City
T = Taylor
MT = Midwest Tech
MS = Middle State
ST = Southern Tech
MW = Midwest State

Twelve Basic Groups: 1-9 and 14-16.

Time of Entrance of Groups 12, 13, and 17:

Group 12 (Taylor University, Arts) and Group 17 (Southern Technological University, Engineering) included students who entered in the fall of 1945 or the fall of 1946.

Group 13 (Central State University, Arts) included students who entered during the first or second semester, 1945-1946.

Underlining of Mean AAG's:

Underlining of a Mean AAG is used to indicate the level of significance of the difference between students choosing a particular response and other students in their subgroup (MV, MN, or FN). A full underline indicates significance at the 1% level; a partial underline, at the 5% level. Significance tests were applied to Mean AAG's only in those columns identified by underlining "Mean AAG" in the heading.

Parentheses around Mean AAG's:

Mean AAG's enclosed in parentheses were based on fewer than 10 students.

Dashes and Blank Spaces:

A dash in the Mean AAG column indicates that no student in the designated subgroup chose that response; a blank space in the body of the table indicates that the analysis plans did not provide for obtaining the information belonging to that space.

Table 6(b)*

Item 6. (b) When were you last in full-time attendance in high school or preparatory school?

A. Prior to 1941 (1, 2)
B. 1941-1942 (3, 4)
C. 1943 (5)
D. 1944 (6)
E. 1945-1946 (7, 8)

Group	Univ.	Division	Veterans Making Each of the Following Responses:												All Questionnaire Respondents	
			Response A		Response B		Response C		Response D		Response E		No Response			
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
			VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**													
1	CS	Arts	11	147	22	136	24	132	28	130	15	132	00	---	466	134
2	E	"	16	145	25	133	23	130	26	127	10	130	00	---	283	132
3	WS	"	11	166	18	142	23	127	30	130	19	128	00	---	272	135
4	M	"	20	141	24	131	26	124	20	130	10	130	00	---	425	131
5	S	"	00	---	02	(127)	18	136	40	131	39	133	½	(150)	150	133
6	H	"	05	(168)	13	138	30	128	35	131	16	127	00	---	105	132
7	A	"	02	(146)	05	135	26	131	34	132	33	132	00	---	465	132
8	D	"	03	(185)	12	(149)	21	129	29	128	36	127	00	---	77	132
9	LS	"	05	(132)	15	128	25	132	33	122	22	139	00	---	103	130
10	MC	"	06		12		26		32		23		00		83	
11	EC	"	09		06		23		32		28		02		53	
12	T	"	38	127	32	119	19	126	05	(138)	06	(133)	00	---	98	125
13	CS	"	33		44		13		10		00		00		63	
14	MT	Engr	16	145	20	135	22	134	27	137	15	147	00	---	267	139
15	MS	"	10	134	19	136	18	135	33	125	20	140	00	---	352	133
16	MC	"	24	134	30	124	22	125	19	131	05	(150)	00	---	167	129
17	ST	"	13		21		18		28		19		00		120	
18	MT	Agri	24	161	15	138	29	135	24	135	09	129	00	---	140	141
19	MW	Bus	16		18		22		28		16		00		232	
20	LS	"	08		18		30		23		20		00		142	
			VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE													
21	EC	Arts	03	(115)	50	147	33	137	14	155	00	---	00	---	70	144
22	A	"	½	(100)	32	140	27	141	36	129	03	(142)	½	(180)	135	136
23	S	"	03		44		31		22		00		00		32	
24	MT	Engr	36		63		01		00		00		00		118	
25	MT	Agri	60		40		00		00		00		00		53	

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 8(a)*

Item 8. (a) In which of the following did you serve? (Check any that apply.)

A. Army (1)
B. Navy (2)
C. Marine Corps (3)
D. Other (Coast Guard, Merchant Marine, Field Services) (4, 5, 6)

Group	Univ.	Division	Veterans Making Response A Per Cent	Veterans Making Response A Mean AAG	Veterans Making Response B Per Cent	Veterans Making Response B Mean AAG	Veterans Making Response C Per Cent	Veterans Making Response C Mean AAG	Veterans Making Response D Per Cent	Veterans Making Response D Mean AAG	Veterans Making No Response Per Cent	Veterans Making No Response Mean AAG	All Questionnaire Respondents Number	All Questionnaire Respondents Mean AAG
			VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**											
1	CS	Arts	38	137	56	132	05	132	02	(138)	00	---	466	134
2	E	"	46	139	46	127	06	124	02	(126)	00	---	283	132
3	WS	"	36	141	56	132	04	137	03	(130)	½	(80)	272	135
4	M	"	54	134	40	128	04	117	02	(141)	¼	(140)	425	131
5	S	"	21	132	69	133	03	(140)	05	(140)	½	(80)	150	133
6	H	"	42	136	53	127	04	(146)	01	(208)	00	---	105	132
7	A	"	35	132	58	134	06	117	½	(113)	½	(165)	465	132
8	D	"	29	133	66	127	04	(160)	01	(240)	00	---	77	132
9	LS	"	33	129	56	129	08	(132)	03	(133)	00	---	103	130
10	MC	"	45		51		02		02		00		83	
11	EC	"	49		45		04		00		02		53	
12	T	"	63	126	29	126	04	(128)	04	(108)	00	---	98	125
13	CS	"	79		16		05		00		00		63	
14	MT	Engr	36	136	59	141	03	(125)	02	(144)	00	---	267	139
15	MS	"	27	128	66	135	04	135	03	124	00	---	352	133
16	MC	"	56	128	35	133	07	116	02	(110)	½	(180)	167	129
17	ST	"	41		56		02		02		00		120	
18	MT	Agri	44	144	51	140	03	(115)	½	(120)	½	(140)	140	141
19	MW	Bus	42		50		06		02		00		232	
20	LS	"	36		52		09		01		01		142	
			VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE											
21	EC	Arts	67	141	29	146	03	(195)	01	(120)	00	---	70	144
22	A	"	50	141	49	131	½	(170)	½	(100)	00	---	135	136
23	S	"	44		41		16		00		00		32	
24	MT	Engr	81		14		05		00		00		118	
25	MT	Agri	74		21		02		04		00		53	

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 8(b)[*]

Item 8. (b) How many months were you in service (on active duty, whether in training or in duty assignments)?

A. Less than 12 months (1, 2)
B. 12 months up to 24 months (3, 4)
C. 24 months up to 36 months (5)
D. 36 months or more (6, 7)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making Response C		Veterans Making Response D		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**														
1	CS	Arts	02	(152)	34	130	44	134	20	139	00	---	466	134
2	E	"	04	112	28	132	38	127	30	141	00	---	283	132
3	WS	"	05	113	32	132	42	133	21	151	½	(80)	272	135
4	M	"	02	(118)	24	133	46	129	28	134	½	(130)	425	131
5	S	"	11	128	60	132	25	136	03	(140)	½	(80)	150	133
6	H	"	05	(92)	38	131	43	137	14	136	00	---	105	132
7	A	"	08	123	47	134	36	132	08	128	½	(165)	465	132
8	D	"	09	(140)	52	127	31	128	08	(163)	00	---	77	132
9	LS	"	03	(143)	50	127	32	128	16	139	00	---	103	130
10	MC	"	08		42		37		12		00		83	
11	EC	"	04		55		24		15		02		53	
12	T	"	03	(93)	10	135	46	130	41	119	00	---	98	125
13	CS	"	02		18		35		46		00		63	
14	MT	Engr	03	(139)	36	142	39	136	21	136	00	---	267	139
15	MS	"	03	138	43	133	35	132	19	133	00	---	352	133
16	MC	"	02	(137)	18	137	46	123	35	133	00	---	167	129
17	ST	"	08		30		40		22		00		120	
18	MT	Agri	03	(138)	38	146	36	126	22	157	½	(140)	140	141
19	MW	Bus	03		39		35		23		00		232	
20	LS	"	04		32		46		16		02		142	
VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE														
21	EC	Arts	04	(143)	40	144	47	141	09	(157)	00	---	70	144
22	A	"	04	(138)	42	131	37	137	16	147	00	---	135	136
23	S	"	00		22		56		22		00		32	
24	MT	Engr	00		04		57		39		00		118	
25	MT	Agri	00		06		49		45		00		53	

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[*] A brief explanation of the organization of this table and the symbols employed is given on page A1.

** [illegible] (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 8(c)*

Item 8. (c) What was the highest rating, rank, or grade you held while in service?

A. Up to and including corporal and seaman first class.
B. Sergeant, petty officer third class, and higher enlisted ratings.
C. Cadet, midshipman, warrant officer.
D. Commissioned ranks up to and including major and lieutenant commander.
E. Lieutenant colonel, commander, and higher ranks. (Did not occur.)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making Response C		Veterans Making Response D		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**														
1	CS	Arts	09	125	83	135	01	(130)	05	126	02	(149)	466	134
2	E	"	10	122	83	133	02	(134)	03	(146)	02	(134)	283	132
3	WS	"	07	124	83	136	03	(126)	05	159	02	(113)	272	135
4	M	"	10	134	77	129	02	133	08	136	03	142	425	131
5	S	"	13	128	81	134	04	(123)	01	(160)	01	(90)	150	133
6	H	"	10	127	77	134	04	(98)	07	(144)	02	(133)	105	132
7	A	"	13	124	78	133	01	(154)	06	130	02	(131)	465	132
8	D	"	08	(137)	84	129	03	(130)	05	(165)	00	---	77	132
9	LS	"	16	129	76	127	04	(148)	03	(187)	02	(110)	103	130
10	MC	"	08		84		00		02		05		83	
11	EC	"	19		74		02		00		06		53	
12	T	"	08	(104)	66	129	05	(110)	19	126	01	(90)	98	125
13	CS	"	19		49		06		22		03		63	
14	MT	Engr	08	145	78	138	02	(140)	09	136	02	(157)	267	139
15	MS	"	06	131	82	131	01	(137)	08	151	03	(128)	352	133
16	MC	"	09	115	71	132	03	(124)	15	126	02	(117)	167	129
17	ST	"	15		72		04		05		03		120	
18	MT	Agri	06	(120)	81	139	02	(167)	07	186	03	(115)	140	141
19	MW	Bus	10		82		03		05		01		232	
20	LS	"	09		84		00		02		05		142	
VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE														
21	EC	Arts	29	136	67	146	03	(150)	01	(160)	00	---	70	144
22	A	"	18	141	70	136	02	(115)	10	131	½	(140)	135	136
23	S	"	12		72		00		16		00		32	
24	MT	Engr	08		52		01		39		01		118	
25	MT	Agri	13		28		02		53		04		53	

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 8(d)*

Item 8. (d) While in service, how many months did you spend in college training courses such as V-12, ASTP, CTD, or Pre-Flight?

A. None (1)
B. One month up to six months (2, 3)
C. Six months or more (4, 5)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making Response C		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
			VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**									
1	CS	Arts	81	135	12	127	05	135	02	(133)	466	134
2	E	"	83	131	12	142	02	(149)	03	(121)	283	132
3	WS	"	80	136	13	133	06	124	01	(123)	272	135
4	M	"	81	132	15	129	03	118	01	(103)	425	131
5	S	"	84	133	08	136	06	(127)	02	(133)	150	133
6	H	"	78	133	18	132	04	(113)	00	---	105	132
7	A	"	79	131	15	134	05	135	01	(165)	465	132
8	D	"	91	130	08	(142)	00	---	01	(150)	77	132
9	LS	"	77	126	18	133	04	(172)	01	(180)	103	130
10	MC	"	75		20		01		04		83	
11	EC	"	85		11		02		02		53	
12	T	"	67	124	24	124	08	(136)	01	(140)	98	125
13	CS	"	67		29		05		00		63	
14	MT	Engr	80	141	14	125	04	137	02	(162)	267	139
15	MS	"	75	132	16	131	08	140	01	(130)	352	133
16	MC	"	65	128	28	132	08	134	00	---	167	129
17	ST	"	78		08		14		00		120	
18	MT	Agri	84	139	13	150	02	(173)	01	(145)	140	141
19	MW	Bus	86		08		03		03		232	
20	LS	"	79		12		05		04		142	
			VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE									
21	EC	Arts	73	145	23	137	03	(175)	01	(150)	70	144
22	A	"	73	137	18	138	08	123	½	(170)	135	136
23	S	"	75		09		16		00		32	
24	MT	Engr	28		42		30		00		118	
25	MT	Agri	43		28		28		00		53	

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

** (except 12, 13, and 17) were freshmen when the questionnaire was ad-

Table 8(e)*

Item 8. (e) Did you take any courses from USAFI (United States Armed Forces Institute) while in service?

A. No USAFI courses (1)
B. Took USAFI courses (2)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**										
1	CS	Arts	88	134	10	137	01	(128)	466	134
2	E	"	88	133	11	130	01	(140)	283	132
3	WS	"	87	135	12	139	½	(95)	272	135
4	M	"	86	131	13	131	01	(92)	425	131
5	S	"	84	132	15	135	01	(145)	150	133
6	H	"	91	132	07	(135)	02	(138)	105	132
7	A	"	87	129	13	147	½	(167)	465	132
8	D	"	91	133	09	(116)	00	---	77	132
9	LS	"	81	129	18	128	02	(155)	103	130
10	MC	"	86		13		01		83	
11	EC	"	72		26		02		53	
12	T	"	84	124	15	135	01	(90)	98	125
13	CS	"	87		11		02		63	
14	MT	Engr	85	140	15	133	½	(150)	267	139
15	MS	"	86	132	14	138	¼	(90)	352	133
16	MC	"	79	128	20	134	½	(110)	167	129
17	ST	"	94		06		00		120	
18	MT	Agri	90	140	09	153	01	(110)	140	141
19	MW	Bus	85		13		01		232	
20	LS	"	80		16		04		142	
VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE										
21	EC	Arts	80	147	19	131	01	(150)	70	144
22	A	"	90	135	10	151	00	---	135	136
23	S	"	84		16		00		32	
24	MT	Engr	87		12		01		118	
25	MT	Agri	87		13		00		53	

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* A brief explanation of the organization of this table and the symbols employed is given on page A1.

** Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 8(f)*

Item 8. (f) Did you serve outside the United States, either during or after hostilities? (Check any that apply.)

A. No (1)
B. Served on sea duty (2)
C. Served in land areas outside the U. S. (3)
D. Served on sea duty and in land areas outside the U. S. (-)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making Response C		Veterans Making Response D		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
			VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**											
1	CS	Arts	23	134	26	134	43	138	08	117	¼	(130)	466	134
2	E	"	16	133	27	123	50	138	06	127	01	(90)	283	132
3	WS	"	25	137	25	133	44	135	06	137	½	(80)	272	135
4	M	"	20	138	20	130	53	130	08	119	00	---	425	131
5	S	"	34	134	32	125	28	138	05	(152)	½	(80)	150	133
6	H	"	28	129	34	130	34	140	04	(108)	00	---	105	132
7	A	"	30	137	25	128	39	132	06	126	½	(165)	465	132
8	D	"	34	131	30	127	30	136	06	(138)	00	---	77	132
9	LS	"	22	131	35	128	37	132	06	(122)	00	---	103	130
10	MC	"	23		23		45		10		00		83	
11	EC	"	17		23		49		09		02		53	
12	T	"	26	134	15	111	54	126	05	(114)	00	---	98	125
13	CS	"	27		06		64		03		00		63	
14	MT	Engr	30	145	24	139	40	134	04	138	½	(170)	267	139
15	MS	"	33	142	30	129	32	128	05	126	00	---	352	133
16	MC	"	23	136	20	127	54	126	02	(152)	00	---	167	129
17	ST	"	34		28		37		02		00		120	
18	MT	Agri	23	154	26	139	47	137	04	(133)	00	---	140	141
19	MW	Bus	19		28		46		06		00		232	
20	LS	"	18		28		42		09		03		142	
			VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE											
21	EC	Arts	26	147	13	(150)	57	140	04	(157)	00	---	70	144
22	A	"	33	132	20	139	45	137	02	(163)	00	---	135	136
23	S	"	31		09		56		03		00		32	
24	MT	Engr	20		04		75		02		00		118	
25	MT	Agri	17		09		70		04		00		53	

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

Table 8(g)*

Item 8. (g) If you served on sea duty or in areas outside the United States, what was the total length of such service?

A. No service outside U. S. (1)
B. Less than 6 months (2)
C. 6 months up to 12 months (3)
D. 12 months up to 18 months (4)
E. 18 months or more (5, 6, 7, 8)
F. Service outside U.S. (8f: 2,3); amount not specified (8g: No Response)

Group	Univ.	Division	Veterans Making Each of the Following Responses:														All Questionnaire Respondents	
			Response A		Response B		Response C		Response D		Response E		Response F		No Response			
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																		
1	CS	Arts	24	136	06	141	22	129	22	135	24	133	01	(168)	00	---	466	134
2	E	"	18	133	07	132	19	131	22	130	32	135	02	(136)	00	---	283	132
3	WS	"	27	140	09	139	23	131	18	129	21	139	½	(95)	½	(80)	272	135
4	M	"	22	137	04	122	21	128	22	129	28	131	03	132	00	---	425	131
5	S	"	34	134	11	131	29	131	17	137	07	135	01	(125)	½	(80)	150	133
6	H	"	30	132	09	(124)	26	125	21	143	13	140	02	(113)	00	---	105	132
7	A	"	30	137	11	132	26	132	19	122	12	136	01	(125)	½	(165)	465	132
8	D	"	32	133	06	(144)	31	115	16	139	12	(149)	03	(155)	00	---	77	132
9	LS	"	23	130	10	129	18	119	23	140	24	128	02	(140)	00	---	103	130
10	MC	"	23		11		18		28		18		02		00		83	
11	EC	"	21		13		26		24		11		02		02		53	
12	T	"	24	132	04	(105)	15	140	19	128	36	115	01	(110)	00	---	98	125
13	CS	"	27		00		13		18		36		06		00		63	
14	MT	Engr	32	145	07	151	20	133	15	129	26	138	½	(100)	00	---	267	139
15	MS	"	33	143	09	135	25	131	18	130	12	112	02	(128)	00	---	352	133
16	MC	"	25	135	07	136	19	131	20	126	26	122	02	(158)	00	---	167	129
17	ST	"	35		08		20		13		22		02		00		120	
18	MT	Agri	23	153	08	154	22	133	18	137	26	131	04	(176)	00	---	140	141
19	MW	Bus	21		08		25		19		24		03		00		232	
20	LS	"	20		07		22		20		28		01		01		142	
VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																		
21	EC	Arts	29	147	07	(142)	23	140	23	150	16	139	03	(120)	00	---	70	144
22	A	"	33	132	13	135	23	148	20	137	08	133	03	(108)	00	---	135	136
23	S	"	31		00		22		28		19		00		00		32	
24	MT	Engr	22		06		26		20		19		07		00		118	
25	MT	Agri	19		09		24		21		23		04		00		53	

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[*] A brief explanation of the organization of this table and the symbols employed is given on page A1.

[**] Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 8(h)*

Item 8. (h) When were you separated from the service? (The date you went off active duty; do not count terminal leave as active duty.)

A. Prior to 1946 (1, 2, 3, 4)
B. 1946 (5)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**										
1	CS	Arts	12	131	88	134	00	---	466	134
2	E	"	19	135	81	132	00	---	283	132
3	WS	"	13	143	86	135	02	(98)	272	135
4	M	"	20	133	80	131	$\frac{1}{4}$	(150)	425	131
5	S	"	02	(117)	97	133	$\frac{1}{2}$	(80)	150	133
6	H	"	10	118	90	134	00	---	105	132
7	A	"	05	129	95	132	$\frac{1}{2}$	(165)	465	132
8	D	"	04	(163)	95	130	01	(150)	77	132
9	LS	"	13	138	87	129	00	---	103	130
10	MC	"	05		95		00		83	
11	EC	"	06		92		02		53	
12	T	"	54	119	46	132	00	---	98	125
13	CS	"	90		10		00		63	
14	MT	Engr	13	133	86	139	01	(147)	267	139
15	MS	"	10	132	90	133	00	---	352	133
16	MC	"	30	123	70	132	00	---	167	129
17	ST	"	27		73		00		120	
18	MT	Agri	16	151	84	139	00	---	140	141
19	MW	Bus	13		87		00		232	
20	LS	"	16		82		02		142	
VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE										
21	EC	Arts	17	147	83	143	00	---	70	144
22	A	"	06	(129)	94	137	00	---	135	136
23	S	"	12		88		00		32	
24	MT	Engr	42		58		00		118	
25	MT	Agri	53		47		00		53	

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the question-

Table 8(j)*

Item 8. (j) When did you first decide definitely that you would go to college?

A. Before graduating from high school (1)
B. After working awhile, but before entering the service (2)
C. While in service (3)
D. After discharge from the service (4)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making Response C		Veterans Making Response D		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
			VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**											
1	CS	Arts	57	135	05	146	30	131	07	132	00	---	466	134
2	E	"	44	135	06	134	38	128	13	137	00	---	283	132
3	WS	"	68	133	04	128	21	142	05	151	01	(97)	272	135
4	M	"	47	131	07	135	39	129	07	137	00	---	425	131
5	S	"	97	132	00	---	02	(160)	00	---	½	(80)	150	133
6	H	"	76	128	03	(195)	19	137	02	(143)	00	---	105	132
7	A	"	93	131	01	(136)	04	152	01	(122)	½	(165)	465	132
8	D	"	90	130	03	(165)	08	(142)	00	---	00	---	77	132
9	LS	"	64	130	02	(185)	29	124	05	(132)	00	---	103	130
10	MC	"	75		02		20		02		00		83	
11	EC	"	72		06		11		09		02		53	
12	T	"	47	124	05	(134)	42	126	06	(123)	00	---	98	125
13	CS	"	30		05		49		16		00		63	
14	MT	Engr	57	138	06	148	30	138	06	142	01	(147)	267	139
15	MS	"	61	135	03	(140)	32	128	04	130	00	---	352	133
16	MC	"	47	130	08	121	40	129	06	136	00	---	167	129
17	ST	"	47		02		38		13		00		120	
18	MT	Agri	39	138	06	(125)	44	146	11	140	00	---	140	141
19	MW	Bus	50		07		32		10		00		232	
20	LS	"	52		04		37		06		½		142	
			VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE											
21	EC	Arts	97	145	03	(95)	00	---	00	---	00	---	70	144
22	A	"	99	137	½	(110)	00	---	00	---	00	---	135	136
23	S	"	100		00		00		00		00		32	
24	MT	Engr	89		10		01		00		00		118	
25	MT	Agri	85		15		00		00		00		53	

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[*] A brief explanation of the organization of this table and the symbols employed is given on page A1.

[**] Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 8(m)*

Item 8. (m) Regardless of how you felt about going to college when you left high school, do you think you actually would have gone to college if you hadn't entered military service? (Check one.)

A. Yes, I'm sure I would have gone (or, I did start college before entering military service) (1, 2)
B. I probably would have gone, but I'm not sure (3)
C. I might have gone, but probably would not have (4)
D. No, I'm almost sure I would not have gone to college (5)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making Response C		Veterans Making Response D		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
			VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**											
1	CS	Arts	61	134	20	133	09	140	10	136	½	(95)	466	134
2	E	"	45	134	28	125	13	138	14	137	00	---	283	132
3	WS	"	63	130	21	138	10	144	06	166	½	(80)	272	135
4	M	"	47	131	22	127	17	132	14	137	¼	(110)	425	131
5	S	"	97	133	01	(120)	01	(160)	00	---	½	(80)	150	133
6	H	"	79	130	08	(114)	09	(159)	04	(150)	01	(158)	105	132
7	A	"	93	131	04	136	02	148	01	(162)	00	---	465	132
8	D	"	84	129	08	(155)	03	(125)	04	(130)	01	(150)	77	132
9	LS	"	65	131	23	137	04	(100)	08	(114)	00	---	103	130
10	MC	"	72		18		05		05		00		83	
11	EC	"	68		13		06		11		02		53	
12	T	"	42	123	24	118	17	128	16	140	00	---	98	125
13	CS	"	41		18		18		24		00		63	
14	MT	Engr	58	140	19	131	13	143	09	142	½	(145)	267	139
15	MS	"	53	135	27	131	11	126	09	136	00	---	352	133
16	MC	"	48	127	25	131	16	128	11	138	00	---	167	129
17	ST	"	48		19		13		18		01		120	
18	MT	Agri	42	136	28	145	14	145	15	144	½	(130)	140	141
19	MW	Bus	51		25		12		12		00		232	
20	LS	"	56		18		12		13		02		142	
			VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE											
21	EC	Arts	99	144	01	(130)	00	---	00	---	00	---	70	144
22	A	"	100	136	00	---	00	---	00	---	00	---	135	136
23	S	"	100		00		00		00		00		32	
24	MT	Engr	100		00		00		00		00		118	
25	MT	Agri	100		00		00		00		00		53	

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

Table 8(n)

Item 8. (n) Are you now drawing (or have you applied for) veterans' educational benefits from the Veterans Administration? (Check any that apply to you.)

A. Yes, under Public Law 16 (and any others) (2)
B. Yes, under Public Law 346; and/or any others except Public Law 16 (1, 3 unless included in A)
C. No, I have not applied for veterans' educational benefits (4)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making Response C		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**												
1	CS	Arts	04	128	94	135	02	(120)	½	(113)	466	134
2	E	"	04	133	94	132	01	(150)	00	---	283	132
3	WS	"	04	142	89	135	06	134	01	(113)	272	135
4	M	"	03	129	96	131	02	(141)	00	---	425	131
5	S	"	01	(180)	94	132	04	(148)	½	(80)	150	133
6	H	"	07	(102)	89	135	04	(106)	01	(158)	105	132
7	A	"	02	120	97	132	¼	(140)	00	---	465	132
8	D	"	04	(147)	90	130	05	(140)	01	(150)	77	132
9	LS	"	06	(127)	87	129	07	(136)	00	---	103	130
10	MC	"	10		87		04		00		83	
11	EC	"	08		72		19		02		53	
12	T	"	08	(106)	89	127	02	(140)	01	(100)	98	125
13	CS	"	11		87		02		00		63	
14	MT	Engr	03	(122)	94	139	02	(156)	½	(145)	267	139
15	MS	"	04	122	95	133	½	(140)	¼	(170)	352	133
16	MC	"	02	(130)	98	129	00	---	00	---	167	129
17	ST	"	10		89		01		00		120	
18	MT	Agri	02	(143)	97	141	00	---	½	(130)	140	141
19	MW	Bus	07		92		01		00		232	
20	LS	"	07		87		04		02		142	
VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE												
21	EC	Arts	07	(106)	77	146	16	151	00	---	70	144
22	A	"	04	(113)	94	138	02	(135)	00	---	135	136
23	S	"	06		94		00		00		32	
24	MT	Engr	06		94		00		00		118	
25	MT	Agri	13		85		02		00		53	

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 8(o)*

Item 8. (o) Do you think you would have come to college after completing your military service if the financial aid provided by veterans' benefits had not been available to you?

A. Yes, I am quite sure I would have come anyway (1)
B. I probably would have come, but I'm not sure (2)
C. I might have come, but I probably would not have come (3)
D. No, I am quite sure I would not have come to college (4)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making Response C		Veterans Making Response D		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
			VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**											
1	CS	Arts	56	134	22	133	10	136	12	137	½	(95)	466	134
2	E	"	39	139	28	120	13	134	20	136	½	(120)	283	132
3	WS	"	64	131	18	140	09	136	08	158	½	(80)	272	135
4	M	"	43	133	22	124	16	135	18	132	00	---	425	131
5	S	"	95	134	03	(116)	½	(80)	½	(90)	½	(80)	150	133
6	H	"	71	131	16	122	06	(155)	06	(150)	01	(158)	105	132
7	A	"	89	132	07	132	03	142	01	(145)	00	---	465	132
8	D	"	80	131	13	134	00	---	05	(135)	01	(150)	77	132
9	LS	"	66	133	16	126	08	(112)	09	(120)	01	(180)	103	130
10	MC	"	65		17		10		08		00		83	
11	EC	"	49		17		15		17		02		53	
12	T	"	37	124	26	120	16	132	18	124	02	(150)	98	125
13	CS	"	43		22		08		27		00		63	
14	MT	Engr	57	138	19	136	09	143	13	139	02	(154)	267	139
15	MS	"	53	134	24	136	10	128	12	127	¼	(170)	352	133
16	MC	"	43	128	21	125	17	130	19	137	00	---	167	129
17	ST	"	49		15		14		22		00		120	
18	MT	Agri	42	134	29	144	13	137	15	156	01	(155)	140	141
19	MW	Bus	49		27		12		12		00		232	
20	LS	"	58		14		13		13		02		142	
			VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE											
21	EC	Arts	70	146	24	135	06	(150)	00	---	00	---	70	144
22	A	"	83	135	14	142	00	---	02	(133)	½	(190)	135	136
23	S	"	91		03		03		03		00		32	
24	MT	Engr	83		12		04		01		00		118	
25	MT	Agri	79		15		02		02		02		53	

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

Table 8(p)[*]

Item 8. (p) On the whole, would you say that your experience while in service made you more eager to go to college or less eager?

A. Made me more eager to go (1)
B. Did not change my feeling about college (2)
C. Made me less eager to go (3)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making Response C		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**												
1	CS	Arts	74	134	22	135	04	125	½	(130)	466	134
2	E	"	77	134	19	130	04	121	00	---	283	132
3	WS	"	71	137	24	133	05	126	½	(80)	272	135
4	M	"	79	131	18	131	03	134	00	---	425	131
5	S	"	66	135	28	132	05	(112)	½	(80)	150	133
6	H	"	75	138	23	113	01	(138)	01	(158)	105	132
7	A	"	60	136	36	128	04	116	00	---	465	132
8	D	"	70	137	27	117	03	(125)	00	---	77	132
9	LS	"	75	129	18	128	07	(137)	00	---	103	130
10	MC	"	69		25		06				83	
11	EC	"	60		28		09		02		53	
12	T	"	76	123	21	132	02	(160)	01	(70)	98	125
13	CS	"	84		14		02		00		63	
14	MT	Engr	77	140	19	138	04	117	½	(145)	267	139
15	MS	"	66	135	29	130	04	119	00	---	352	133
16	MC	"	72	131	26	127	02	(97)	00	---	167	129
17	ST	"	79		20		01				120	
18	MT	Agri	80	142	18	133	01	(170)	½	(130)	140	141
19	MW	Bus	81		16		03				232	
20	LS	"	84		08		05		02		142	
VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE												
21	EC	Arts	61	146	37	140	01	(150)	00	---	70	144
22	A	"	60	139	35	135	05	(123)	00	---	135	136
23	S	"	38		56		06		00		32	
24	MT	Engr	56		40		04		00		118	
25	MT	Agri	70		30		00		00		53	

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[*] A brief explanation of the organization of this table and the symbols employed is given on page A1.

[**] Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered

Table 8(q)*

Item 8. (q) On the whole, how would you say your military service experience, or the fact of having been in service, has affected your ability to do good scholastic work in college?

A. Increased scholastic ability (1)
B. Decreased scholastic ability (2)
C. No effect upon scholastic ability (3)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making Response C		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
			VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**									
1	CS	Arts	35	145	28	118	36	136	01	(128)	466	134
2	E	"	46	142	18	107	35	132	00	---	283	132
3	WS	"	32	150	22	116	45	134	½	(125)	272	135
4	M	"	42	138	19	112	37	133	01	(117)	425	131
5	S	"	32	155	25	106	41	133	02	(97)	150	133
6	H	"	37	150	30	109	31	133	01	(158)	105	132
7	A	"	36	141	20	112	43	133	01	(160)	465	132
8	D	"	35	144	27	117	36	130	01	(150)	77	132
9	LS	"	36	146	24	121	38	117	02	(185)	103	130
10	MC	"	39		24		37		00		83	
11	EC	"	23		45		30		02		53	
12	T	"	31	135	24	119	45	123	01	(70)	98	125
13	CS	"	36		18		44		02		63	
14	MT	Engr	45	146	26	116	28	147	½	(145)	267	139
15	MS	"	37	151	23	103	40	133	00	---	352	133
16	MC	"	48	141	14	103	36	125	01	(75)	167	129
17	ST	"	42		18		41		00		120	
18	MT	Agri	36	158	19	113	44	140	½	(130)	140	141
19	MW	Bus	47		16		38		00		232	
20	LS	"	54		16		28		03		142	
			VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE									
21	EC	Arts	37	152	16	124	46	144	01	(120)	70	144
22	A	"	44	151	14	113	42	129	00	---	135	136
23	S	"	47		22		31		00		32	
24	MT	Engr	47		14		39		00		118	
25	MT	Agri	64		04		30		02		53	

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**[illegible] (except 12, 13, and 17) were freshmen when the questionnaire was ad-

Table 8(r)(1)*

Item 8. (r) (1) In general, regardless of the reasons, would you say you are doing better or worse in your college work than you would have done if you had gone on with your schooling instead of going into the service?

A. Now doing better than I would have done (1)
B. Now doing worse than I would have done (2)
C. Doing neither better nor worse (3)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making Response C		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**												
1	CS	Arts	36	150	38	116	24	136	01	(157)	466	134
2	E	"	44	149	34	111	22	131	00	---	283	132
3	WS	"	36	157	34	114	28	132	02	(130)	272	135
4	M	"	40	146	35	113	24	132	01	(112)	425	131
5	S	"	30	152	43	116	26	140	½	(80)	150	133
6	H	"	37	159	39	105	23	135	01	(158)	105	132
7	A	"	38	141	26	114	35	136	01	(126)	465	132
8	D	"	23	152	42	120	34	133	01	(90)	77	132
9	LS	"	37	143	35	122	25	117	03	(163)	103	130
10	MC	"	40		36		24		00		83	
11	EC	"	30		45		23		02		53	
12	T	"	38	130	28	114	33	127	02	(165)	98	125
13	CS	"	36		27		35		02		63	
14	MT	Engr	38	155	36	117	26	145	01	(147)	267	139
15	MS	"	40	153	35	107	25	138	½	(140)	352	133
16	MC	"	44	144	30	107	25	130	½	(140)	167	129
17	ST	"	51		26		22		01		120	
18	MT	Agri	44	154	27	112	29	148	½	(130)	140	141
19	MW	Bus	49		28		24		00		232	
20	LS	"	55		23		20		02		142	
VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE												
21	EC	Arts	59	154	16	104	23	146	03	(130)	70	144
22	A	"	58	145	14	107	27	133	00	---	135	136
23	S	"	56		25		19		00		32	
24	MT	Engr	59		19		21		01		118	
25	MT	Agri	72		06		23		00		53	

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[*] A brief explanation of the organization of this table and the symbols employed is given on page A1.

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Table 8(r)(2)*

Item 8. (r)(2) What is the most important reason for your answer?

Doing better {A. More mature, more responsible, broader experience
B. Improved attitude toward education, clearer objectives, better concentration

Doing worse {C. Impaired ability to absorb new information, have lost knack of studying, have forgotten background knowledge
D. Restlessness, nervous tension resulting from wartime experiences, changed sense of values, tendency to place extra-curricular activities above academic achievement

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making Response C		Veterans Making Response D		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
			VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE **											
1	CS	Arts	22	154	13	145	21	120	16	113	28	136	466	134
2	E	"	24	150	18	147	20	115	12	109	25	130	283	132
3	WS	"	20	152	16	164	24	116	09	110	32	132	272	135
4	M	"	22	145	18	146	22	113	11	113	27	131	425	131
5	S	"	16	152	13	154	23	117	18	116	29	136	150	133
6	H	"	17	165	18	155	29	104	10	108	27	134	105	132
7	A	"	21	141	16	140	14	108	11	116	38	137	465	132
8	D	"	10	(151)	13	153	32	124	09	(107)	35	132	77	132
9	LS	"	23	142	13	149	26	123	07	(117)	31	121	103	130
10	MC	"	17		19		20		16		28		83	
11	EC	"	21		08		15		28		28		53	
12	T	"	18	132	16	133	16	107	11	122	38	128	98	125
13	CS	"	19		18		14		10		40		63	
14	MT	Engr	21	152	17	158	23	118	10	114	30	143	267	139
15	MS	"	18	158	19	151	23	109	10	102	30	135	352	133
16	MC	"	25	142	18	147	20	111	09	95	28	131	167	129
17	ST	"	24		24		16		10		26		120	
18	MT	Agri	20	163	22	148	16	115	11	110	31	146	140	141
19	MW	Bus	27		20		16		10		26		232	
20	LS	"	33		21		16		06		24		142	
			VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE											
21	EC	Arts	30	157	26	151	04	(110)	11	(101)	29	145	70	144
22	A	"	33	148	24	144	02	(117)	09	107	32	128	135	136
23	S	"	44		12		09		09		25		32	
24	MT	Engr	31		17		08		10		34		118	
25	MT	Agri	38		28		02		04		28		53	

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 9(b)*

Item 9. (b) If you worked full-time before entering military service or college, how long were you employed?

A. Did not work full-time (9a: 2, No Response; 9b: 1)
B. Less than six months (2)
C. Six months or more (3, 4, 5, 6)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	47	76	76	132	121	19	15	11	131	113	34	09	13	139	111	00	02	00	---	(110)	466	166	272	134	119
2	E	"	34	73	77	125	120	20	18	14	135	127	46	08	09	137	(125)	00	00	02	---	---	283	94	159	132	122
3	WS	"	48	70	73	127	128	17	21	14	133	129	35	09	13	147	124	00	½	¼	---	(140)	272	148	374	135	128
4	M	"	38	78	81	128	125	13	14	09	123	124	48	07	10	135	133	00	00	00	---	---	425	193	216	131	125
5	S	"	88	90		130	129	11	08		159	123	01	01		(125)	(130)	00	00		---	---	150	323		133	128
6	H	"	52	76	84	133	129	22	18	12	126	124	26	06	04	137	(138)	00	00	½	---	---	105	146	213	132	129
7	A	"	85	93		131	130	09	05		130	120	07	02		150	112	¼	¼		(100)	(20)	465	612		132	129
8	D	"	68	92	97	132	131	16	07	03	133	(118)	17	02	00	129	(110)	00	00	01	---	---	77	119	93	132	130
9	LS	"	56	76	79	131	129	18	21	08	124	129	25	04	13	131	(155)	00	00	00	---	---	103	107	134	130	130
10	MC	"	70	92				07	08				23	00				00	01				83	72			
11	EC	"	53	93	94			23	05	06			24	02	½			00	01	½			53	147	285		
12	T	"	22	72	69	127	136	18	14	14	120	138	59	14	17	126	145	01	00	00	(140)	---	98	94	121	125	137
13	CS	"	19					21					60					00					63				
14	MT	Engr	40	75		136	112	20	17		142	111	40	08		140	101	00	00		---	---	267	122		139	111
15	MS	"	53	80		131	122	18	14		138	106	29	06		133	(122)	00	00		---	---	352	98		133	119
16	MC	"	36	73		130	133	13	18		128	127	51	09		129	117	00	00		---	---	167	171		129	130
17	ST	"	48	56				16	26				36	18				00	00				120	50			
18	MT	Agri	39	73		137	119	16	20		133	121	44	07		148	(137)	00	00		---	---	140	100		141	121
19	MW	Bus	39	67				23	21				38	12				00	00				232	58			
20	LS	"	44	75				22	12				33	12				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	84	91		145	120	09	06		(150)	(138)	07	03		(126)	(110)	01	00		(90)	---	70	99		144	121
22	A	"	86	91		138	121	10	08		125	(132)	04	01		(130)	(120)	00	00		---	---	135	97		136	122
23	S	"	88	82				09	15				03	02				00	00				32	40			
24	MT	Engr	59					14					26					01					118				
25	MT	Agri	51					13					36					00					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 10*

Item 10. What would you say were the chief reasons for your coming to college? (Put a "1" in front of the item that best expresses what you consider the most important reason and a "2" and "3" in front of the next most important reasons.)

First Choice Only
- A. To prepare for better-paying job than otherwise available (c)
- B. To obtain necessary training for chosen profession (d)
- C. To increase general knowledge (e)
- D. Other (a, b, f, g, h, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making Response D					No Response			All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																														
1	CS	A	49	40	20	131	120	28	33	18	141	119	14	11	38	136	113	09	15	24	124	120	00	½	½	466	166	272	134	119
2	E	"	45	35	28	129	115	32	36	23	139	133	15	12	27	135	125	07	17	22	123	112	00	00	00	283	94	159	132	122
3	WS	"	40	33	23	134	121	38	47	20	134	129	11	07	35	143	142	11	13	22	135	134	½	00	¼	272	148	374	135	128
4	M	"	47	33	26	130	116	37	49	35	131	130	09	08	20	139	119	07	10	19	126	134	½	00	½	425	193	216	131	125
5	S	"	31	25		127	118	23	28		148	134	30	26		128	133	15	20		130	127	00	00		150	323		133	128
6	H	"	49	34	16	128	119	30	35	17	127	134	15	17	34	147	136	06	14	32	(155)	128	00	00	01	105	146	213	132	129
7	A	"	38	29		133	124	22	26		142	139	22	27		132	132	18	18		118	118	01	½		465	612		132	129
8	D	"	40	18	10	122	127	36	46	11	148	131	13	15	39	124	142	10	20	41	(121)	121	00	00	00	77	119	93	132	130
9	LS	"	41	25	16	120	132	33	44	19	134	133	20	11	40	138	135	06	20	25	(145)	118	00	00	00	103	107	134	130	130
10	MC	"	34	22				41	58				14	12				11	07				00	00		83	72			
11	EC	"	30	28	10			43	39	25			11	18	44			15	15	21			00	00	00	53	147	285		
12	T	"	22	18	15	116	129	24	26	16	127	146	49	44	60	130	131	05	13	09	(112)	154	00	00	00	98	94	121	125	137
13	CS	"	41					36					16					06					00			63				
14	MT	E	60	50		138	110	23	19		142	114	12	17		132	113	06	14		143	109	½	00		267	122		139	111
15	MS	"	66	52		134	115	24	36		132	129	03	04		144	(112)	06	08		120	(104)	¼	00		352	98		133	119
16	MC	"	54	56		132	124	38	35		133	140	05	04		(96)	(142)	02	05		(95)	(124)	00	00		167	171		129	130
17	ST	"	73	64				20	18				05	08				02	10				00	00		120	50			
18	MT	Ag	39	37		134	119	14	10		138	108	36	40		148	122	10	13		147	133	½	00		140	100		141	121
19	MW	B	71	67				10	14				11	10				08	09				00	00		232	58			
20	LS	"	68	66				11	12				12	08				09	14				00	00		142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																														
21	EC	A	31	35		140	119	36	37		152	115	14	20		132	130	19	07		144	(133)	01	00		70	99		144	121
22	A	"	27	24		134	126	27	20		142	121	25	37		146	118	21	20		120	127	½	01		135	97		136	122
23	S	"	25	40				19	25				38	10				19	25				00	00		32	40			
24	MT	E	48					36					08					08					01			118				
25	MT	Ag	40					19					26					15					00			53				

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* [illegible] organization of this table and the symbols employed is given on page A1.

Table 11*

Item 11. What kind of work are you planning to do after you finish your studies? (Describe the job as specifically as you can.)

A. Specific profession requiring graduate study
B. Specific profession probably requiring college degree but not necessarily any graduate training
C. Other profession or occupation; broad field (as, business, agriculture, civil service, politics); not planning to work (includes No Response)
D. Undecided or considering markedly different alternatives

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making Response D					No Response			All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																														
1	CS	A	27	31	06	140	123	16	16	26	141	122	46	44	52	130	117	12	09	16	127	108	02	02	½	466	166	272	134	119
2	E	"	16	28	02	145	134	30	29	31	138	119	44	37	55	125	117	10	06	12	127	(113)	½	00	00	283	94	159	132	122
3	WS	"	27	48	07	130	127	27	14	25	142	130	36	29	52	135	124	10	10	16	130	141	01	00	¼	272	148	374	135	128
4	M	"	40	63	16	133	130	19	11	38	134	126	35	21	35	129	116	07	05	11	121	102	½	½	01	425	193	216	131	125
5	S	"	25	39		148	134	14	12		140	127	47	36		122	123	14	14		132	124	½	¼		150	323		133	128
6	H	"	24	27	05	138	134	23	24	26	132	127	39	39	54	129	123	14	10	16	132	139	00	00	½	105	146	213	132	129
7	A	"	21	29		143	139	18	21		140	138	48	39		126	118	13	12		126	125	01	00		465	612		132	129
8	D	"	38	53	03	135	133	09	08	13	(169)	140	38	26	56	120	122	16	13	28	129	126	00	01	00	77	119	93	132	130
9	LS	"	29	36	07	140	122	28	28	30	127	145	36	28	46	128	126	07	08	18	(104)	(124)	00	01	02	103	107	134	130	130
10	MC	"	42	65				17	07				34	18				07	10				02	00		83	72			
11	EC	"	38	33	13			24	26	47			28	29	29			09	13	11			02	½	½	53	147	285		
12	T	"	26	45	26	124	141	18	14	25	136	133	42	27	33	117	137	14	15	16	138	132	03	02	03	98	94	121	125	137
13	CS	"	33					14					48					05					02			63				
14	MT	E	12	07		158	(138)	39	32		139	115	45	51		135	106	04	11		123	108	01	00		267	122		139	111
15	MS	"	12	11		140	126	46	47		136	122	38	40		130	114	04	02		111	(125)	00	02		352	98		133	119
16	MC	"	08	16		127	127	48	37		136	140	40	43		124	123	05	04		(114)	(140)	03	01		167	171		129	130
17	ST	"	08	04				51	32				38	64				04	00				02	02		120	50			
18	MT	Ag	02	03		(193)	(130)	25	22		143	115	69	72		138	121	04	03		(148)	(150)	00	00		140	100		141	121
19	MW	B	09	12				16	14				66	69				10	05				½	02		232	58			
20	LS	"	04	08				17	17				68	63				12	12				00	00		142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																														
21	EC	A	36	34		147	123	40	33		141	119	21	26		146	123	03	06		(120)	(105)	01	00		70	99		144	121
22	A	"	33	39		143	118	13	12		121	137	38	42		131	122	16	06		147	(120)	00	02		135	97		136	122
23	S	"	16	35				22	15				53	38				09	12				03	00		32	40			
24	MT	E	06					52					40					02					02			118				
25	MT	Ag	09					24					64					02					00			53				

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[*] A brief explanation of the organization of this table and the symbols employed is given on page A1.

[**] Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 12*

Item 12. How sure do you feel that you will actually do this general kind of work?

A. I am almost certain (1)
B. I probably will, but may do something else (2)
C. I am not at all sure what I shall do (3, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	45	35	36	137	122	35	42	35	134	117	20	23	29	127	118	03	03	03	128	(84)	466	166	272	134	119
2	E	"	48	56	37	142	124	35	30	45	123	118	17	14	18	125	122	03	00	02	(139)	---	283	94	159	132	122
3	WS	"	44	38	37	136	132	36	45	33	135	127	20	17	30	134	122	02	02	03	(142)	(153)	272	148	374	135	128
4	M	"	50	47	46	135	129	34	38	34	130	125	16	14	20	121	114	02	½	02	(113)	(110)	425	193	216	131	125
5	S	"	31	35		134	138	39	41		133	125	29	24		131	121	02	02		(103)	(134)	150	323		133	128
6	H	"	45	41	34	131	128	37	41	37	138	128	18	18	29	124	131	00	02	02	---	(131)	105	146	213	132	129
7	A	"	38	36		134	135	40	44		132	125	23	20		128	127	03	02		123	136	465	612		132	129
8	D	"	53	52	16	134	131	27	29	28	135	130	20	19	56	121	126	01	01	01	(110)	(80)	77	119	93	132	130
9	LS	"	50	43	33	133	132	31	35	39	134	127	19	22	28	114	130	01	01	03	(70)	(140)	103	107	134	130	130
10	MC	"	47	39				34	50				19	11				02	03				83	72			
11	EC	"	26	22	32			49	52	44			24	26	24			02	02	01			53	147	285		
12	T	"	49	31	34	120	141	33	48	36	136	136	18	21	31	122	135	01	02	03	(100)	(160)	98	94	121	125	137
13	CS	"	57					32					11					05					63				
14	MT	Engr	37	27		137	123	42	47		145	108	21	26		128	104	05	01		107	(150)	267	122		139	111
15	MS	"	31	26		137	111	51	57		135	124	19	16		120	118	01	00		(127)	---	352	98		133	119
16	MC	"	35	26		127	138	47	48		127	129	18	26		140	125	02	01		(145)	(120)	167	171		129	130
17	ST	"	37	42				45	36				18	22				03	00				120	50			
18	MT	Agri	57	49		140	122	32	44		144	119	11	07		140	(126)	½	00		(110)	---	140	100		141	121
19	MW	Bus	41	36				47	45				12	19				02	00				232	58			
20	LS	"	39	31				43	46				18	23				02	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	43	33		139	130	36	57		149	119	21	10		144	100	01	00		(90)	---	70	99		144	121
22	A	"	36	33		132	112	39	50		130	128	25	16		144	126	03	01		(158)	(150)	135	97		136	122
23	S	"	38	35				38	45				25	20				00	02				32	40			
24	MT	Engr	42					47					12					01					118				
25	MT	Agri	47					42			—		11					02					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 13*

Item 13. How important is it for you to graduate from college in order to do the kind of work you are planning to do?

A. Absolutely necessary (1)
B. Not absolutely necessary (2, 3, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	48	57	34	140	123	52	43	66	128	114	03	02	04	135	(112)	466	166	272	134	119
2	E	"	50	61	33	139	126	50	39	67	127	115	01	00	04	(162)	---	283	94	159	132	122
3	WS	"	56	64	33	138	128	44	36	67	132	127	03	½	05	(141)	(80)	272	148	374	135	128
4	M	"	60	73	56	134	128	40	27	44	126	119	02	01	04	119	(80)	425	193	216	131	125
5	S	"	46	58		142	134	54	42		125	120	03	02		(156)	(104)	150	323		133	128
6	H	"	55	53	38	133	132	45	47	62	131	124	01	03	05	(148)	(146)	105	146	213	132	129
7	A	"	45	54		138	136	55	46		127	121	03	02		129	136	465	612		132	129
8	D	"	48	64	25	141	134	52	36	75	122	123	01	03	02	(120)	(92)	77	119	93	132	130
9	LS	"	62	66	36	133	129	38	34	64	124	131	01	04	04	(100)	(138)	103	107	134	130	130
10	MC	"	61	68				39	32				02	06				83	72			
11	EC	"	60	60	62			40	40	38			00	05	04			53	147	285		
12	T	"	50	67	53	130	140	50	33	47	120	132	03	04	07	(143)	(158)	98	94	121	125	137
13	CS	"	52					48					03					63				
14	MT	Engr	56	48		143	118	44	52		133	104	½	00		(95)	---	267	122		139	111
15	MS	"	60	62		136	125	40	38		128	110	½	01		(100)	(80)	352	98		133	119
16	MC	"	58	57		135	135	42	43		122	124	00	00		---	---	167	171		129	130
17	ST	"	59	44				41	56				00	00				120	50			
18	MT	Agri	40	31		146	121	60	69		138	121	00	00		---	---	140	100		141	121
19	MW	Bus	31	29				69	71				03	02				232	58			
20	LS	"	25	35				75	65				01	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	70	64		143	123	30	36		144	117	01	00		(90)	---	70	99		144	121
22	A	"	55	57		140	124	45	43		131	120	03	01		(172)	(30)	135	97		136	122
23	S	"	44	52				56	48				03	05				32	40			
24	MT	Engr	64					36					00					118				
25	MT	Agri	43					57					00					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 14*

Item 14. How important do you think college grades will be in relation to the kind of opportunities that will be available to you after college?

A. Very important (1)
B. Fairly important (2)
C. Hardly important at all (3, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	22	32	22	137	118	58	49	62	132	117	21	19	15	136	126	½	01	½	(113)	(170)	466	166	272	134	119
2	E	"	34	39	44	138	128	56	51	48	128	123	10	10	08	135	(91)	½	00	½	(100)	---	283	94	159	132	122
3	WS	"	32	34	28	130	132	46	51	54	138	122	22	14	17	137	140	½	00	01	(130)	---	272	148	374	135	128
4	M	"	34	47	42	139	126	50	38	50	126	124	16	16	08	130	126	00	00	00	---	---	425	193	216	131	125
5	S	"	21	32		153	136	49	49		128	129	31	19		126	112	01	½		(190)	(110)	150	323		133	128
6	H	"	36	36	30	139	135	56	49	58	131	127	08	14	12	(107)	118	00	½	00	---	(138)	105	146	213	132	129
7	A	"	26	31		141	138	52	54		132	126	22	16		122	121	¼	00		(100)	---	465	612		132	129
8	D	"	40	40	27	132	135	39	40	57	127	126	21	20	16	139	129	00	00	00	---	---	77	119	93	132	130
9	LS	"	27	45	37	139	132	55	45	54	126	126	18	10	10	127	138	00	01	00	---	(180)	103	107	134	130	130
10	MC	"	26	43				52	46				22	11				02	01				83	72			
11	EC	"	36	33	22			42	44	53			23	23	26			02	½	01			53	147	285		
12	T	"	20	39	33	128	141	54	43	41	123	139	26	18	26	128	126	01	02	02	(200)	(155)	98	94	121	125	137
13	CS	"	11					54					35					02					63				
14	MT	Engr	24	20		152	124	67	66		136	109	09	14		129	101	00	00		---	---	267	122		139	111
15	MS	"	32	29		142	121	60	65		130	121	08	06		120	(97)	¼	00		(130)	---	352	98		133	119
16	MC	"	22	32		137	134	64	56		129	132	14	13		118	114	00	½		---	(20)	167	171		129	130
17	ST	"	16	40				77	48				08	12				00	00				120	50			
18	MT	Agri	13	10		147	114	54	64		140	122	33	26		140	121	00	00		---	---	140	100		141	121
19	MW	Bus	25	16				56	62				18	22				½	02				232	58			
20	LS	"	26	15				56	63				18	22				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	24	25		158	116	51	44		140	122	24	30		137	124	01	01		(90)	(170)	70	99		144	121
22	A	"	33	24		137	139	47	55		141	121	20	22		126	106	½	00		(100)	---	135	97		136	122
23	S	"	31	40				50	38				19	22				00	00				32	40			
24	MT	Engr	11					60					29					00					118				
25	MT	Agri	08					57					36					00					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 15*

Item 15. If you could be admitted to (and could get housing at) any other university you might choose, do you think you would still want to attend the institution at which you are now studying?

A. Definitely would still want to attend the same university (1)
B. Uncertain, or would definitely attend some other university (2, 3, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	51	55	62	138	125	49	45	38	130	112	¼	00	00	(100)	---	466	166	272	134	119
2	E	"	38	34	43	131	132	62	66	57	133	117	00	00	00	---	---	283	94	159	132	122
3	WS	"	55	43	54	133	125	45	57	46	138	130	00	00	00	---	---	272	148	374	135	128
4	M	"	47	44	43	130	127	53	56	57	131	124	00	½	½	---	(50)	425	193	216	131	125
5	S	"	85	88		135	129	15	12		122	120	00	¼		---	(110)	150	323		133	128
6	H	"	55	62	61	140	130	45	38	39	122	126	00	00	--	---	---	105	146	213	132	129
7	A	"	80	88		132	129	20	12		131	129	¼	00		(100)	---	465	612		132	129
8	D	"	77	68	74	134	133	23	32	26	123	124	00	00	00	---	---	77	119	93	132	130
9	LS	"	48	47	67	132	133	52	53	33	127	127	00	00	00	---	---	103	107	134	130	130
10	MC	"	46	46				54	54				00	00				83	72			
11	EC	"	15	26	36			85	74	64			00	00	(½)			53	147	285		
12	T	"	80	76	75	126	141	20	24	25	120	125	00	00	01	---	---	98	94	121	125	137
13	CS	"	64					36					00					63				
14	MT	Engr	54	41		144	121	46	59		133	104	00	00		---	---	267	122		139	111
15	MS	"	69	64		135	119	31	36		129	119	00	00		---	---	352	98		133	119
16	MC	"	72	80		129	136	28	20		129	108	00	00		---	---	167	171		129	130
17	ST	"	65	74				35	26				00	00				120	50			
18	MT	Agri	65	69		146	123	35	31		133	115	00	00		---	---	140	100		141	121
19	MW	Bus	50	33				50	67				½	00				232	58			
20	LS	"	64	49				36	51				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	27	28		151	118	73	72		141	122	01	02		(90)	(165)	70	99		144	121
22	A	"	81	86		138	123	19	14		131	118	00	00		---	---	135	97		136	122
23	S	"	69	100				31	00				00	00				32	40			
24	MT	Engr	64					36					01					118				
25	MT	Agri	68					32					00					53				

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[*] A brief explanation of the organization of this table and the symbols employed is given on page A1.

[**] Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 16*

Item 16. Is the school or division (e.g., arts, engineering) in which you are now studying your first choice, or would you prefer to major in some other school or division in the same institution?

A. Now in field of first choice (1)
B. Would prefer to major in some other school or division, or, undecided as to preference (2, -, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	73	74	82	137	120	27	26	18	125	117	03	01	02	133	(60)	466	166	272	134	119
2	E	"	81	78	80	135	122	19	22	20	121	120	03	02	04	(133)	(180)	283	94	159	132	122
3	WS	"	84	81	81	137	130	16	19	19	123	118	02	03	03	(150)	(120)	272	148	374	135	128
4	M	"	89	89	84	132	128	11	11	16	122	103	½	00	½	(135)	---	425	193	216	131	125
5	S	"	95	96		133	129	05	04		(133)	112	02	02		(183)	(129)	150	323		133	128
6	H	"	90	88	94	134	127	10	12	06	115	142	01	00	01	(168)	---	105	146	213	132	129
7	A	"	95	94		133	129	05	06		113	123	02	02		122	135	465	612		132	129
8	D	"	92	94	97	132	131	08	06	03	(132)	(117)	01	01	00	(160)	(50)	77	119	93	132	130
9	LS	"	84	86	78	132	135	16	14	22	118	100	01	03	½	(70)	(127)	103	107	134	130	130
10	MC	"	80	92				20	08				00	00				83	72			
11	EC	"	74	83	94			26	17	06			04	03	01			53	147	285		
12	T	"	68	70	69	127	139	32	30	31	122	134	12	14	17	125	142	98	94	121	125	137
13	CS	"	71					29					02					63				
14	MT	Engr	88	79		141	117	12	21		121	91	½	00		(120)	---	267	122		139	111
15	MS	"	94	94		133	121	06	06		124	(90)	00	00		---	---	352	98		133	119
16	MC	"	95	94		130	133	05	06		(108)	87	00	00		---	---	167	171		129	130
17	ST	"	94	92				06	08				00	02				120	50			
18	MT	Agri	92	94		141	121	08	06		138	(122)	00	00		---	---	140	100		141	121
19	MW	Bus	94	93				06	07				½	00				232	58			
20	LS	"	88	88				12	12				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	76	81		145	126	24	19		139	101	03	02		(110)	(70)	70	99		144	121
22	A	"	93	98		136	123	07	02		(141)	(95)	02	00		(165)	---	135	97		136	122
23	S	"	88	95				12	05				00	00				32	40			
24	MT	Engr	94					06					00					118				
25	MT	Agri	98					02					00					53				

*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was adminis-

Table 17*

Item 17. How would you rate, as teachers, the faculty members who have taught you this past term?

A. Most (or all) are good teachers (1, 2)
B. Some (or fewer) are good teachers (3, 4, 5, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	43	50	56	137	123	57	50	44	132	115	$\frac{1}{4}$	00	00	(100)	---	466	166	272	134	119
2	E	"	48	53	60	134	130	52	47	40	131	112	00	00	00	---	---	283	94	159	132	122
3	WS	"	49	53	50	139	127	51	47	50	131	129	00	00	00	---	---	272	148	374	135	128
4	M	"	48	50	55	134	127	52	50	45	128	124	$\frac{1}{4}$	$\frac{1}{2}$	00	(150)	(160)	425	193	216	131	125
5	S	"	55	55		138	132	45	45		126	123	00	00		---	---	150	323		133	128
6	H	"	61	65	75	136	132	39	35	25	126	122	00	00	00	---	---	105	146	213	132	129
7	A	"	59	65		134	133	41	35		129	122	$\frac{1}{4}$	00		(100)	---	465	612		132	129
8	I	"	66	58	52	138	130	34	42	48	118	129	00	00	00	---	---	77	119	93	132	130
9	LS	"	58	66	58	135	127	42	34	42	122	135	01	00	00	(160)	---	103	107	134	130	130
10	MC	"	42	50				58	50				00	00				83	72			
11	EC	"	49	46	40			51	54	60			00	00	00			53	147	285		
12	T	"	76	80	79	125	141	24	20	21	125	125	00	02	00	---	(85)	98	94	121	125	137
13	CS	"	41					59					00					63				
14	MT	Engr	32	30		148	111	68	70		134	111	00	00		---	---	267	122		139	111
15	MS	"	40	45		136	124	60	55		131	115	00	00		---	---	352	98		133	119
16	MC	"	56	62		130	133	44	38		128	126	00	00		---	---	167	171		129	130
17	ST	"	43	42				57	58				00	00				120	50			
18	MT	Agri	39	50		146	123	61	50		138	119	00	00		---	---	140	100		141	121
19	MW	Bus	47	47				53	53				00	00				232	58			
20	LS	"	51	46				49	54				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	61	46		138	130	39	54		153	113	01	00		(90)	---	70	99		144	121
22	A	"	59	65		136	126	41	35		137	114	00	00		---	---	135	97		136	122
23	S	"	56	55				44	45				00	00				32	40			
24	MT	Engr	35					65					01					118				
25	MT	Agri	36					64					00					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 18*

Item 18. In general, are you enjoying your studies in college this term as much as you had expected to?

A. Enjoy studies less than anticipated (1)
B. Enjoy studies as much or more than anticipated (2, 3, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	26	20	22	123	110	74	80	78	138	121	00	00	½	---	---	466	166	272	134	119
2	E	"	26	26	12	116	99	74	74	88	138	130	00	00	00	---	---	283	94	159	132	122
3	WS	"	21	20	16	126	121	79	80	84	138	129	½	03	02	(130)	(118)	272	148	374	135	128
4	M	"	29	32	23	121	111	71	68	77	135	132	¼	00	01	(140)	---	425	193	216	131	125
5	S	"	25	22		117	119	75	78		138	131	00	½		---	(95)	150	323		133	128
6	H	"	22	23	17	116	105	78	77	83	137	136	00	00	01	---	---	105	146	213	132	129
7	A	"	24	18		114	115	76	82		138	132	½	¼		(115)	(140)	465	612		132	129
8	D	"	21	19	22	106	139	79	81	78	138	128	00	00	00	---	---	77	119	93	132	130
9	LS	"	28	20	22	115	114	72	80	78	136	134	00	01	½	---	(170)	103	107	134	130	130
10	MC	"	35	24				65	76				00	00				83	72			
11	EC	"	28	30	30			72	70	70			02	00	½			53	147	285		
12	T	"	16	12	21	124	127	84	88	79	125	139	01	02	00	(110)	(125)	98	94	121	125	137
13	CS	"	29					71					00					63				
14	MT	Engr	27	25		123	95	73	75		144	116	½	00		(125)	---	267	122		139	111
15	MS	"	24	28		121	118	76	72		136	120	½	00		(145)	---	352	98		133	119
16	MC	"	13	13		119	94	87	87		131	136	00	½		---	(20)	167	171		129	130
17	ST	"	15	18				85	82				00	00				120	50			
18	MT	Agri	23	19		136	116	77	81		143	122	00	01		---	(110)	140	100		141	121
19	MW	Bus	19	36				81	64				00	00				232	58			
20	LS	"	15	15				85	85				02	02				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	17	27		136	106	83	73		145	127	01	00		(90)	---	70	99		144	121
22	A	"	18	16		126	102	82	84		139	126	½	00		(90)	---	135	97		136	122
23	S	"	19	15				81	85				00	00				32	40			
24	MT	Engr	22					78					00					118				
25	MT	Agri	15					85					00					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 20*

Item 20. Have you found it more or less difficult to keep up in your work this term than you had expected it to be?

A. More difficult (1, 2)
B. About as expected (3, No Response)
C. Less difficult (4, 5)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	41	49	56	127	115	41	34	30	140	123	18	16	14	139	122	00	½	00	---	(90)	466	166	272	134	119
2	E	"	57	60	50	126	116	32	31	41	140	124	11	10	09	144	(154)	½	00	½	(120)	---	283	94	159	132	122
3	WS	"	43	43	41	132	123	38	39	43	134	131	19	18	16	144	132	02	03	01	(106)	(128)	272	148	374	135	128
4	M	"	52	54	55	127	123	36	31	30	134	123	12	15	15	140	137	¼	00	00	(100)	---	425	193	216	131	125
5	S	"	47	39		125	116	41	43		139	139	12	19		145	127	00	¼		---	(100)	150	323		133	128
6	H	"	47	45	49	119	115	45	38	37	144	136	09	17	14	(139)	149	01	00	00	(188)	---	105	146	213	132	129
7	A	"	39	40		119	120	44	45		138	134	17	14		148	138	¼	¼		(190)	(120)	465	612		132	129
8	D	"	47	50	54	125	123	43	39	39	138	135	10	12	08	(134)	144	00	00	00	---	---	77	119	93	132	130
9	LS	"	45	43	56	117	113	39	44	32	139	143	16	13	12	143	141	00	00	00	---	---	103	107	134	130	130
10	MC	"	49	50				35	40				16	10				00	04				83	72			
11	EC	"	45	42	43			40	45	43			15	14	14			02	½	½			53	147	285		
12	T	"	48	42	50	121	132	37	46	48	126	137	15	13	02	135	157	01	02	00	(160)	(100)	98	94	121	125	137
13	CS	"	44					46					10					00					63				
14	MT	Engr	33	42		127	102	47	34		145	120	20	24		145	113	02	00		(145)	---	267	122		139	111
15	MS	"	57	54		129	111	31	41		142	130	12	05		129	122	01	00		(117)	---	352	98		133	119
16	MC	"	41	34		125	123	47	47		132	130	13	18		133	144	00	00		---	---	167	171		129	130
17	ST	"	44	54				40	28				16	18				00	00				120	50			
18	MT	Agri	44	46		129	120	39	37		147	124	16	17		203	116	00	00		---	---	140	100		141	121
19	MW	Bus	38	45				42	34				20	21				½	00				232	58			
20	LS	"	47	54				30	29				23	17				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	23	39		144	107	54	40		149	119	23	20		132	152	03	01		(150)	(110)	70	99		144	121
22	A	"	42	35		129	116	47	48		140	123	11	16		151	131	½	01		(80)	(120)	135	97		136	122
23	S	"	44	60				38	32				19	08				00	00				32	40			
24	MT	Engr	36					54					10					00					118				
25	MT	Agri	34					45					21					00					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 21*

Item 21. Are you planning to take your degree in less than the usual amount of time spent (either by attending summer sessions or by taking a heavier than normal load of courses)?

A. Yes, in less than the usual amount of time (1)
B. No, in the usual time, somewhat longer, or don't plan to graduate (2, 3, -, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	40	13	09	137	116	60	87	91	132	120	01	01	04	(126)	(80)	466	166	272	134	119
2	E	"	40	06	05	135	(117)	60	94	95	131	122	01	01	01	(112)	(130)	283	94	159	132	122
3	WS	"	24	09	07	138	140	76	91	93	134	127	01	½	02	(137)	(90)	272	148	374	135	128
4	M	"	55	21	11	131	135	45	79	89	131	123	½	00	00	(110)	---	425	193	216	131	125
5	S	"	08	½		122	(135)	92	99		134	128	½	¼		(110)	(100)	150	323		133	128
6	H	"	46	07	05	133	143	54	93	95	132	128	01	00	00	(188)	---	105	146	213	132	129
7	A	"	12	01		134	(134)	88	99		132	129	¼	½		(190)	(128)	465	612		132	129
8	D	"	39	13	01	135	139	61	87	99	129	129	00	00	01	---	---	77	119	93	132	130
9	LS	"	42	10	07	139	122	58	90	93	123	131	03	00	03	(130)	---	103	107	134	130	130
10	MC	"	49	26				51	74				02	03				83	72			
11	EC	"	66	22	24			34	78	76			02	02	½			53	147	285		
12	T	"	56	19	13	130	165	44	81	87	120	131	00	02	00	---	(135)	98	94	121	125	137
13	CS	"	70					30					03					63				
14	MT	Engr	32	03		144	(75)	68	97		136	112	02	00		(140)	---	267	122		139	111
15	MS	"	40	11		134	108	60	89		132	121	00	00		---	---	352	98		133	119
16	MC	"	03	½		(126)	(30)	97	99		129	131	00	00		---	---	167	171		129	130
17	ST	"	63	22				37	78				00	00				120	50			
18	MT	Agri	25	05		154	(136)	75	95		137	120	01	01		(165)	(140)	140	100		141	124
19	MW	Bus	50	12				50	88				01	02				232	58			
20	LS	"	45	12				55	88				01	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	69	24		147	110	31	76		136	124	04	02		(140)	(160)	70	99		144	121
22	A	"	13	01		145	(140)	87	99		135	122	½	01		(80)	(120)	135	97		136	122
23	S	"	12	00				88	100				00	00				32	40			
24	MT	Engr	45					55					01					118				
25	MT	Agri	45					55					02					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was adminis-

Item 22. During the past week, how many hours did you spend at each of the following activities? (If the past week was not typical, indicate the number of hours for a typical week.)

(a) Attending classes, labs, regularly scheduled course conferences

A. Relatively few, as compared to own college group
B. Moderate number, as compared to own college group (includes No Response)
C. Relatively many, as compared to own college group

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
			GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																								
1	CS	Arts	46	13	18	128	116	29	25	36	137	110	25	61	47	142	124	½	½	½	(90)	(90)	466	166	272	134	119
2	E	"	70	32	32	129	116	19	49	46	136	122	11	19	21	152	130	01	01	02	(140)	(130)	283	94	159	132	122
3	WS	"	20	06	08	129	(108)	63	62	60	136	125	17	32	32	140	137	02	06	04	(158)	(132)	272	148	374	135	128
4	M	"	45	19	28	131	115	26	28	49	135	119	29	53	23	128	132	½	½	½	(140)	(180)	425	193	216	131	125
5	S	"	41	22		130	127	27	20		123	125	31	58		144	130	00	½		---	(95)	150	323		133	128
6	H	"	50	16	16	131	121	48	73	74	137	130	03	11	10	(81)	132	01	00	00	(188)	---	105	146	213	132	129
7	A	"	51	30		130	131	40	50		134	126	09	20		134	134	¼	¼		(190)	(120)	465	612		132	129
8	D	"	44	35	63	133	126	51	50	26	134	127	05	15	11	(102)	147	00	00	00	---	---	77	119	93	132	130
9	LS	"	52	27	52	122	125	32	33	40	142	120	16	40	08	131	141	00	00	00	---	---	103	107	134	130	130
10	MC	"	12	07				59	46				29	47				00	04				83	72			
11	EC	"	45	37	33			32	48	57			23	15	10			02	½	½			53	147	285		
12	T	"	24	24	29	122	125	55	53	54	126	132	20	22	17	126	165	02	03	01	(80)	(110)	98	94	121	125	137
13	CS	"	33					36					30					00					63				
14	MT	Engr	75	24		137	94	19	33		145	113	06	43		144	119	02	01		(140)	(90)	267	122		139	111
15	MS	"	39	32		129	108	43	50		135	125	18	18		135	124	02	02		(107)	(80)	352	98		133	119
16	MC	"	08	04		133	(87)	71	53		131	130	21	44		123	134	½	½		(210)	(150)	167	171		129	130
17	ST	"	48	32				45	30				08	38				00	00				120	50			
18	MT	Agri	38	13		140	113	26	28		146	120	36	59		138	123	00	00		---	---	140	100		141	121
19	MW	Bus	38	16				57	72				06	12				½	00				232	58			
20	LS	"	32	11				63	82				05	08				00	00				142	65			
			GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																								
21	EC	Arts	44	13		139	123	47	69		149	121	09	18		(137)	118	09	01		(157)	(110)	70	99		144	121
22	A	"	37	57		134	124	38	26		140	130	24	18		134	105	½	02		(80)	(110)	135	97		136	122
23	S	"	03	05				62	45				34	50				00	00				32	40			
24	MT	Engr	23					25					52					01					118				
25	MT	Agri	34					34					32					02					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 22(b)*

Item 22. During the past week, how many hours did you spend at each of the following activities? (If the past week was not typical, indicate the number of hours for a typical week.)

(b) Studying in your room, the library, or elsewhere

A. 14 hours or less
B. 15-24 hours (includes No Response)
C. 25 hours or more

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	39	41	49	127	115	37	32	35	134	121	24	26	16	146	122	02	½	½	(100)	(90)	466	166	272	134	119
2	E	"	32	34	35	117	110	37	37	42	132	131	31	29	23	148	125	½	00	½	(145)	---	283	94	159	132	122
3	WS	"	26	31	20	127	128	39	42	44	136	129	35	27	36	140	126	02	07	04	(158)	129	272	148	374	135	128
4	M	"	30	42	56	122	115	41	41	32	133	130	29	17	11	137	139	¼	00	00	(150)	---	425	193	216	131	125
5	S	"	18	20		116	113	40	42		137	130	42	38		136	134	00	¼		---	(100)	150	323		133	128
6	H	"	04	16	14	(168)	130	44	42	42	135	123	52	42	44	128	134	04	00	½	(108)	---	105	146	213	132	129
7	A	"	11	13		123	114	43	42		130	128	45	45		136	134	01	01		(165)	(118)	465	612		132	129
8	D	"	34	32	37	121	118	46	34	45	137	137	21	34	18	138	134	00	00	00	---	---	77	119	93	132	130
9	LS	"	34	29	27	126	131	40	41	38	129	123	26	30	35	136	139	01	02	00	(130)	(145)	103	107	134	130	130
10	MC	"	53	38				34	47				13	15				00	06				83	72			
11	EC	"	36	50	50			42	33	34			23	17	16			02	½	½			53	147	285		
12	T	"	18	13	11	118	128	29	33	41	122	130	53	54	48	129	144	02	04	01	(80)	(120)	98	94	121	125	137
13	CS	"	30					41					29					03					63				
14	MT	Engr	21	22		141	122	46	50		144	108	33	28		131	109	02	01		(150)	(90)	267	122		139	111
15	MS	"	31	37		131	112	40	45		129	122	29	18		140	129	02	04		(107)	(102)	352	98		133	119
16	MC	"	32	47		123	125	42	39		129	129	26	14		137	150	½	01		(210)	(115)	167	171		129	130
17	ST	"	38	52				40	38				22	10				00	00				120	50			
18	MT	Agri	26	16		134	121	35	44		145	124	39	40		142	118	½	02		(210)	(100)	140	100		141	121
19	MW	Bus	38	59				36	29				25	12				01	00				232	58			
20	LS	"	32	38				39	38				29	23				½	03				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	43	50		138	116	46	26		143	118	11	23		(169)	133	09	02		(157)	(95)	70	99		144	121
22	A	"	17	30		128	103	34	37		132	127	49	33		142	134	02	02		(103)	(110)	135	97		136	122
23	S	"	12	25				41	40				47	35				00	00				32	40			
24	MT	Engr	05					36					58					01					118				
25	MT	Agri	36					38					26					00					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

questionnaire was administered.

Table 22(c)*

Item 22. During the past week, how many hours did you spend at each of the following activities? (If the past week was not typical, indicate the number of hours for a typical week.)

(c) Athletics and physical recreation (not counting physical education courses)

A. 3 hours or less (includes No Response)
B. 4-7 hours
C. 8 hours or more

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	47	50	67	134	121	31	28	27	135	115	22	22	06	132	121	08	05	09	132	(111)	466	166	272	134	119
2	E	"	52	46	59	136	115	28	29	31	126	126	20	26	10	133	130	12	04	09	130	(92)	283	94	159	132	122
3	WS	"	43	42	44	136	129	30	32	38	130	131	28	26	[illegible]	140	123	11	10	07	138	134	272	148	374	135	128
4	M	"	55	46	70	132	128	27	28	24	134	120	19	26	06	124	126	07	03	05	138	(116)	425	193	216	131	125
5	S	"	35	37		123	129	25	21		142	130	40	42		135	127	03	04		(142)	131	150	323		133	128
6	H	"	40	40	80	128	130	37	38	19	131	127	23	23	01	142	130	08	04	08	(150)	(135)	105	146	213	132	129
7	A	"	36	41		134	132	34	30		130	127	30	28		132	126	03	04		140	147	465	612		132	129
8	D	"	38	34	52	133	141	32	33	37	140	122	30	34	12	120	127	01	02	03	(120)	(163)	77	119	93	132	130
9	LS	"	36	36	56	128	136	39	36	36	130	116	25	28	08	131	140	03	00	07	(137)	---	103	107	134	130	130
10	MC	"	51	39				28	39				22	22				06	10				83	72			
11	EC	"	51	38	65			36	33	29			13	29	06			06	02	05			53	147	285		
12	T	"	65	65	74	126	139	26	26	17	124	130	08	10	08	(121)	(144)	12	19	16	129	125	98	94	121	125	137
13	CS	"	57					32					11					06					63				
14	MT	Engr	56	43		138	110	28	40		142	114	15	16		136	108	06	04		137	(104)	267	122		139	111
15	MS	"	49	41		132	116	34	32		135	123	18	28		130	119	07	06		128	(98)	352	98		133	119
16	MC	"	50	40		134	131	32	37		128	135	17	22		119	122	06	05		134	(106)	167	171		129	130
17	ST	"	50	44				34	36				16	20				03	06				120	50			
18	MT	Agri	52	51		141	125	33	40		140	113	15	09		145	(131)	11	09		145	(108)	140	100		141	121
19	MW	Bus	47	45				35	28				18	28				06	05				232	58			
20	LS	"	39	40				41	32				20	28				04	02				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	34	39		148	121	37	39		142	123	29	21		142	117	09	07		(157)	(126)	70	99		144	121
22	A	"	53	41		143	129	22	37		139	128	25	22		121	99	08	10		136	137	135	97		136	122
23	S	"	44	40				25	25				31	35				09	02				32	40			
24	MT	Engr	65					23					12					08					118				
25	MT	Agri	64					24					11					06					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 22(d)*

Item 22. During the past week, how many hours did you spend at each of the following activities? (If the past week was not typical, indicate the number of hours for a typical week.)

(d) Other organized extracurricular activities (except social affairs)

A. 1 hour or less (includes No Response)
B. 2-3 hours
C. 4 hours or more

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	75	64	46	134	120	11	19	30	135	121	14	16	24	132	114	26	25	15	135	114	466	166	272	134	119
2	E	"	70	60	43	134	124	13	22	26	134	120	17	18	31	126	116	23	20	21	133	123	283	94	159	132	122
3	WS	"	70	64	40	137	130	15	16	25	126	117	15	20	36	133	129	20	25	19	138	124	272	148	374	135	128
4	M	"	77	61	36	131	126	11	12	32	134	119	12	26	32	127	127	20	11	11	135	131	425	193	216	131	125
5	S	"	70	57		132	126	13	16		147	130	17	27		126	133	10	18		128	123	150	323		133	128
6	H	"	59	49	38	127	122	22	31	39	138	130	19	20	22	140	142	25	20	10	136	125	105	146	213	132	129
7	A	"	71	61		131	127	13	17		132	141	17	22		138	125	19	19		137	133	465	612		132	129
8	D	"	51	44	22	130	129	32	27	41	141	142	17	29	38	118	120	08	04	03	(152)	(120)	77	119	93	132	130
9	LS	"	64	63	31	124	129	15	17	42	144	122	21	21	27	138	139	18	22	09	137	135	103	107	134	130	130
10	MC	"	49	60				20	25				30	15				13	36				83	72			
11	EC	"	76	44	34			15	28	38			09	29	28			21	06	09			53	147	285		
12	T	"	79	71	64	124	137	11	16	16	135	143	10	13	20	123	133	31	30	31	118	133	98	94	121	125	137
13	CS	"	76					10					14					24					63				
14	MT	Engr	71	57		136	107	16	25		151	120	12	18		137	112	18	20		142	102	267	122		139	111
15	MS	"	80	64		134	123	11	20		129	121	09	15		127	102	23	21		134	120	352	98		133	119
16	MC	"	75	71		129	132	12	14		130	125	13	15		130	125	26	20		128	132	167	171		129	130
17	ST	"	78	68				17	22				05	10				15	12				120	50			
18	MT	Agri	70	57		141	122	15	19		143	116	15	24		141	121	27	26		138	125	140	100		141	121
19	MW	Bus	66	59				18	09				16	33				23	21				232	58			
20	LS	"	58	42				21	32				20	26				13	11				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	61	57		146	118	21	22		133	123	17	21		149	126	24	17		149	117	70	99		144	121
22	A	"	56	50		133	126	18	23		155	117	26	27		131	120	14	19		130	116	135	97		136	122
23	S	"	72	58				19	25				09	18				22	22				32	40			
24	MT	Engr	63					17					20					20					118				
25	MT	Agri	32					32					36					09					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

the questionnaire was administered.

Table 22(e)*

Item 22. During the past week, how many hours did you spend at each of the following activities? (If the past week was not typical, indicate the number of hours for a typical week.)

(e) Social activities and recreation--dates, parties, movies, etc.

A. 5 hours or less (includes No Response)
B. 6-9 hours
C. 10 hours or more

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	33	43	13	137	115	28	28	20	137	117	38	28	67	129	128	04	04	02	126	(124)	466	166	272	134	119
2	E	"	42	35	20	134	125	16	22	20	137	117	42	43	60	129	122	07	03	03	129	(113)	283	94	159	132	122
3	WS	"	43	43	15	141	131	20	20	18	124	119	36	37	66	135	128	06	07	06	138	127	272	148	374	135	128
4	M	"	36	38	23	136	126	23	24	32	128	120	41	38	45	128	128	04	02	01	125	(160)	425	193	216	131	125
5	S	"	47	55		135	130	15	22		132	125	38	24		131	127	½	02		(120)	(132)	150	323		133	128
6	H	"	27	42	16	124	135	25	24	23	135	129	49	34	62	135	120	07	02	01	(128)	(148)	105	146	213	132	129
7	A	"	45	54		138	132	23	22		130	124	32	24		125	126	04	04		156	145	465	612		132	129
8	D	"	25	30	03	146	134	29	25	20	126	137	47	44	76	127	123	04	01	00	(163)	(110)	77	119	93	132	130
9	LS	"	23	29	13	140	135	25	30	17	122	123	52	41	70	129	131	02	01	02	(150)	(160)	103	107	134	130	130
10	MC	"	18	40				18	21				64	39				04	08				83	72			
11	EC	"	28	29	12			26	26	30			45	46	58			04	01	01			53	147	285		
12	T	"	47	54	26	126	142	24	26	29	123	146	29	20	46	125	114	09	08	04	(132)	(131)	98	94	121	125	137
13	CS	"	54					18					29					05					63				
14	MT	Engr	47	43		139	115	24	28		144	105	28	30		134	111	03	04		(131)	(106)	267	122		139	111
15	MS	"	35	34		134	118	21	26		132	115	45	40		133	124	03	06		94	(98)	352	98		133	119
16	MC	"	41	37		130	134	24	23		128	129	35	40		129	127	06	04		150	(103)	167	171		129	130
17	ST	"	52	64				21	16				27	20				01	04				120	50			
18	MT	Agri	51	49		141	121	26	31		149	114	23	20		132	132	04	04		(112)	(92)	140	100		141	121
19	MW	Bus	25	22				21	28				54	50				04	05				232	58			
20	LS	"	31	31				24	20				45	49				01	02				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	24	28		134	118	31	33		145	124	44	38		148	120	10	03		(151)	(113)	70	99		144	121
22	A	"	36	37		141	118	26	23		138	126	38	40		131	124	04	04		(135)	(140)	135	97		136	122
23	S	"	56	58				22	18				22	25				06	02				32	40			
24	MT	Engr	58					22					20					08					118				
25	MT	Agri	53					28					19					02					53				

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[*] A brief explanation of the organization of this table and the symbols employed is given on page A1.

[**] Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 22(f)*

Item 22. During the past week, how many hours did you spend at each of the following activities? (If the past week was not typical, indicate the number of hours for a typical week.)

(f) Attending public lectures, concerts, and other cultural activities

A. 1 hour or less (includes No Response)
B. 2 hours or more

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	73	70	54	132	119	27	30	46	139	120	21	18	16	132	118	466	166	272	134	119
2	E	"	85	77	74	134	123	15	23	26	122	117	28	27	31	131	125	283	94	159	132	122
3	WS	"	75	72	62	135	127	25	28	38	135	130	20	22	23	136	123	272	148	374	135	128
4	M	"	72	67	45	131	127	28	33	55	130	121	17	15	11	136	136	425	193	216	131	125
5	S	"	69	65		131	125	31	35		136	133	16	17		139	126	150	323		133	128
6	H	"	74	70	69	131	129	26	30	31	136	128	28	17	16	143	130	105	146	213	132	129
7	A	"	77	74		13[illegible]	128	23	26		135	133	20	20		137	132	465	612		132	129
8	D	"	71	74	70	135	131	29	26	30	122	127	10	12	09	(141)	127	77	119	93	132	130
9	LS	"	64	65	60	131	132	36	35	40	127	126	21	12	12	140	152	103	107	134	130	130
10	MC	"	78	69				22	31				22	25				83	72			
11	EC	"	57	54	37			43	46	63			13	10	14			53	147	285		
12	T	"	53	48	37	123	136	47	52	63	128	139	15	18	17	111	136	98	94	121	125	137
13	CS	"	73					27					21					63				
14	MT	Engr	82	70		138	109	18	30		142	117	22	23		139	108	267	122		139	111
15	MS	"	80	79		132	121	20	21		137	115	22	22		135	124	352	98		133	119
16	MC	"	89	88		128	132	11	12		142	118	34	26		127	135	167	171		129	130
17	ST	"	82	76				18	24				18	24				120	50			
18	MT	Agri	78	72		141	122	22	28		141	119	23	25		137	118	140	100		141	121
19	MW	Bus	76	71				24	29				26	22				232	58			
20	LS	"	68	72				32	28				14	15				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	54	59		152	114	46	41		133	131	17	15		154	119	70	99		144	121
22	A	"	68	67		133	124	32	33		143	118	20	16		123	111	135	97		136	122
23	S	"	69	75				31	25				16	28				32	40			
24	MT	Engr	83					17					21					118				
25	MT	Agri	81					19					19					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

** 12, 13, and 17) were freshmen when the questionnaire was adminis-

Table 22(g)*

Item 22. During the past week, how many hours did you spend at each of the following activities? (If the past week was not typical, indicate the number of hours for a typical week.)

(g) Bull sessions

A. 3 hours or less (includes No Response)
B. 4-5 hours
C. 6 hours or more

Group	Univ.	Division	Students Making Response A: Per Cent MV	MN	FN	Mean AAG MV	MN	Students Making Response B: Per Cent MV	MN	FN	Mean AAG MV	MN	Students Making Response C: Per Cent MV	MN	FN	Mean AAG MV	MN	Students Making No Response: Per Cent MV	MN	FN	Mean AAG MV	MN	All Questionnaire Respondents: Number MV	MN	FN	Mean AAG MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	41	45	38	136	114	22	22	26	135	120	38	33	36	132	125	09	06	06	135	111	466	166	272	134	119
2	E	"	58	57	60	132	117	22	24	20	129	126	20	18	21	136	131	20	16	19	132	120	283	94	159	132	122
3	WS	"	51	69	55	134	128	21	14	22	138	138	28	18	23	135	119	10	18	17	137	132	272	148	374	135	128
4	M	"	49	47	53	135	117	21	28	18	127	140	30	25	30	127	124	12	10	10	135	123	425	193	216	131	125
5	S	"	24	29		138	126	25	23		140	130	51	49		127	129	02	03		(123)	(118)	150	323		133	128
6	H	"	42	47	32	128	133	29	21	30	139	130	30	32	38	131	121	07	04	03	(154)	(118)	105	146	213	132	129
7	A	"	34	32		132	129	23	22		136	133	42	46		130	127	08	07		126	127	465	612		132	129
8	D	"	48	39	46	129	128	27	21	13	146	135	25	40	41	119	129	08	00	01	(123)	---	77	119	93	132	130
9	LS	"	43	43	36	131	130	21	20	31	135	125	36	37	34	124	132	11	06	04	141	(119)	103	107	134	130	130
10	MC	"	53	76				22	12				25	11				14	19				83	72			
11	EC	"	62	55	60			13	28	21			24	17	19			13	08	20			53	147	285		
12	T	"	53	52	50	125	141	20	14	19	132	132	26	34	31	119	134	12	17	18	126	129	98	94	121	125	137
13	CS	"	51					21					29					21					63				
14	MT	Engr	49	45		139	108	22	30		142	113	29	25		136	114	09	07		143	(107)	267	122		139	111
15	MS	"	53	64		131	117	21	17		134	131	26	18		136	116	09	14		126	121	352	98		133	119
16	MC	"	60	62		133	133	22	17		115	126	18	21		135	127	18	12		138	129	167	171		129	130
17	ST	"	42	38				22	24				37	38				06	12				120	50			
18	MT	Agri	54	46		141	119	20	26		139	114	26	28		143	130	13	08		163	(96)	140	100		141	121
19	MW	Bus	42	52				29	29				29	19				07	09				232	58			
20	LS	"	42	35				24	23				34	42				05	05				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	41	57		142	116	34	20		142	142	24	23		150	114	17	11		158	102	70	99		144	121
22	A	"	36	25		134	137	26	22		139	110	38	54		137	120	07	06		129	(142)	135	97		136	122
23	S	"	28	25				22	08				50	68				06	05				32	40			
24	MT	Engr	65					15					20					18					118				
25	MT	Agri	62					17					21					08					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 22(h)*

Item 22. During the past week, how many hours did you spend at each of the following activities? (If the past week was not typical, indicate the number of hours for a typical week.)

(h) Paid employment

A. 1 hour or less (includes No Response)
B. 2 hours or more

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean	AAG	Per Cent			Mean	AAG	Per Cent			Mean	AAG	Number			Mean	AAG
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	70	64	80	136	124	30	36	20	131	110	19	19	26	143	126	466	166	272	134	119
2	E	"	64	43	69	133	123	36	57	31	131	121	18	16	25	126	115	203	94	159	132	122
3	WS	"	66	66	78	135	131	34	34	22	134	123	18	22	31	133	130	272	148	374	135	128
4	M	"	74	51	72	131	125	26	49	28	130	125	18	12	16	138	120	425	193	216	131	125
5	S	"	87	83		131	128	13	17		141	127	19	26		141	124	150	323		133	128
6	H	"	74	60	97	133	129	26	40	03	131	128	25	19	24	142	124	105	146	213	132	129
7	A	"	92	71		131	124	08	29		141	142	28	20		134	123	465	612		132	129
8	D	"	83	93	95	132	130	17	07	05	127	(129)	12	13	10	(140)	116	77	119	93	132	130
9	LS	"	79	70	83	130	130	21	30	17	128	130	18	19	29	143	141	103	107	134	130	130
10	MC	"	60	49				40	51				14	21				83	72			
11	EC	"	79	66	68			21	34	32			23	12	17			53	147	285		
12	T	"	64	73	60	126	139	36	27	40	123	134	21	33	30	122	132	98	94	121	125	137
13	CS	"	49					51					18					63				
14	MT	Engr	74	69		138	111	26	31		140	112	20	25		131	105	267	122		139	111
15	MS	"	74	64		131	122	26	36		139	115	18	19		135	117	352	98		133	119
16	MC	"	90	82		129	135	10	18		129	110	32	28		131	139	167	171		129	130
17	ST	"	89	82				11	18				21	22				120	50			
18	MT	Agri	64	52		141	128	36	48		141	114	20	27		139	131	140	100		141	121
19	MW	Bus	59	62				41	38				16	19				232	58			
20	LS	"	78	85				22	15				18	18				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	80	52		142	121	20	48		152	121	17	15		160	125	70	99		144	121
22	A	"	83	58		138	117	17	42		129	130	21	18		129	115	135	97		136	122
23	S	"	84	70				16	30				28	28				32	40			
24	MT	Engr	76					24					27					118				
25	MT	Agri	60					40					15					53				

*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was adminis-

Table 22(i)*

Item 22. During the past week, how many hours did you spend at each of the following activities? (If the past week was not typical, indicate the number of hours for a typical week.)

(i) Other non-routine activities

A. 1 hour or less (includes No Response)
B. 2 hours or more

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	74	79	74	134	121	26	21	26	134	113	48	52	50	136	118	466	166	272	134	119
2	E	"	74	67	72	132	123	26	33	28	134	119	50	48	52	129	126	283	94	159	132	122
3	WS	"	68	68	69	135	129	32	32	31	136	125	42	49	52	137	129	272	148	374	135	128
4	M	"	69	56	61	131	126	31	44	39	131	125	40	35	38	131	129	425	193	216	131	125
5	S	"	77	76		132	128	23	24		135	128	45	49		133	124	150	323		133	128
6	H	"	82	73	84	133	125	18	27	16	131	137	52	50	53	135	128	105	146	213	132	129
7	A	"	79	76		132	128	21	24		133	131	47	49		133	130	465	612		132	129
8	D	"	87	75	64	131	130	13	25	36	133	129	36	32	29	128	122	77	119	93	132	130
9	LS	"	70	71	78	126	135	30	29	22	138	118	48	43	58	129	138	103	107	134	130	130
10	MC	"	70	60				30	40				52	47				83	72			
11	EC	"	68	56	56			32	44	44			45	40	43			53	147	285		
12	T	"	68	70	62	125	135	32	30	38	125	144	50	54	52	129	133	98	94	121	125	137
13	CS	"	71					29					52					63				
14	MT	Engr	78	81		140	112	22	19		136	109	50	62		142	112	267	122		139	111
15	MS	"	72	62		133	120	28	38		133	118	39	41		133	120	352	98		133	119
16	MC	"	78	78		129	132	22	22		130	124	52	56		130	128	167	171		129	130
17	ST	"	70	66				30	34				38	46				120	50			
18	MT	Agri	84	81		139	123	16	19		155	114	57	60		139	120	140	100		141	121
19	MW	Bus	75	66				25	34				48	53				232	58			
20	LS	"	72	74				28	26				37	43				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	69	59		141	120	31	41		149	122	46	48		145	120	70	99		144	121
22	A	"	74	76		136	121	26	24		138	126	48	57		134	121	135	97		136	122
23	S	"	75	75				25	25				56	52				32	40			
24	MT	Engr	76					24					54					118				
25	MT	Agri	72					28					49					53				

*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 24*

Item 24. About how many hours did you spend during the past seven days in reading or studying materials which are related to courses you are taking but which are not a part of course requirements?

A. Less than one hour (1, No Response)
B. One hour up to two hours (2)
C. Two hours or more (3, 4, 5, 6, 7)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	30	36	36	131	127	25	29	34	130	111	45	35	29	138	118	½	01	½	(190)	(135)	466	166	272	134	119
2	E	"	25	26	33	133	$\overline{118}$	26	29	27	131	116	49	46	40	$\overline{133}$	128	00	00	½	---	---	283	94	159	132	122
3	WS	"	31	36	40	139	126	29	24	26	130	124	40	40	34	136	131	01	05	04	(163)	(133)	272	148	374	135	128
4	M	"	27	30	35	133	123	22	24	24	131	127	52	46	41	130	126	¼	½	00	(130)	(100)	425	193	216	131	125
5	S	"	44	46		128	125	31	25		134	129	25	30		139	132	00	½		---	(70)	150	323		133	128
6	H	"	29	28	39	126	129	20	29	31	141	140	51	43	30	132	120	01	00	½	(188)	---	105	146	213	132	129
7	A	"	44	46		$\underline{128}$	130	29	23		137	$\overline{124}$	27	31		134	$\overline{132}$	½	½		(130)	(100)	465	612		132	129
8	D	"	39	46	50	$\overline{131}$	127	25	23	29	131	134	36	31	20	132	131	00	00	01	---	---	77	119	93	132	130
9	LS	"	27	38	34	128	135	25	23	31	125	135	48	38	35	133	122	01	00	01	(150)	---	103	107	134	130	130
10	MC	"	31	29				29	36				40	35				00	06				83	72			
11	EC	"	34	26	36			19	27	25			47	46	38			02	½	01			53	147	285		
12	T	"	34	30	45	$\underline{115}$	138	18	21	18	127	136	48	49	37	131	138	03	01	02	(107)	(150)	98	94	121	125	137
13	CS	"	25					21					54					02					63				
14	MT	Engr	40	34		$\underline{149}$	116	27	33		139	114	33	33		$\underline{126}$	103	01	00		(140)	---	267	122		139	111
15	MS	"	47	42		137	126	25	26		127	122	27	32		130	108	01	01		(94)	(90)	352	98		133	119
16	MC	"	44	44		128	130	23	26		122	$\underline{141}$	33	30		136	$\overline{122}$	00	01		---	(90)	167	171		129	130
17	ST	"	42	52				21	18				38	30				00	00				120	50			
18	MT	Agri	21	27		129	125	40	36		148	127	39	37		141	$\underline{112}$	00	01		---	(180)	140	100		141	121
19	MW	Bus	35	43				30	22				34	34				½	00				232	58			
20	LS	"	30	32				30	35				39	32				00	02				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	37	26		156	110	19	24		$\underline{106}$	113	44	50		149	$\underline{131}$	09	02		(163)	(130)	70	99		144	121
22	A	"	49	37		132	125	24	30		131	129	27	33		149	113	½	01		(80)	(120)	135	97		136	122
23	S	"	34	45				16	22				50	32				00	00				32	40			
24	MT	Engr	33					26					41					01					118				
25	MT	Agri	17					32					51					00					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 25*

Item 25. How often, during the past four weeks, have you gone to evening lectures given by visiting lecturers or local faculty members but not required by any specific course?

A. Attended no evening lectures (1, No Response)
B. Attended one or more evening lectures (2, 3, 4)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	Fn	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	66	72	58	131	116	34	28	42	140	126	¼	½	00	(200)	(90)	466	166	272	134	119
2	E	"	87	87	89	132	120	13	13	11	135	137	00	01	½	---	(140)	283	94	159	132	122
3	WS	"	69	70	66	136	127	31	30	34	134	129	½	03	03	(140)	(150)	272	148	374	135	128
4	M	"	85	85	76	131	125	15	15	24	128	125	¼	00	00	(140)	---	425	193	216	131	125
5	S	"	45	44		129	124	55	56		136	132	00	¼		---	(100)	150	323		133	128
6	H	"	80	69	80	130	127	20	31	20	139	133	01	03	00	(188)	(120)	105	146	213	132	129
7	A	"	64	58		130	125	36	42		135	134	00	¼		---	(125)	465	612		132	129
8	D	"	75	86	82	130	132	25	14	18	136	119	00	01	00	---	(150)	77	119	93	132	130
9	LS	"	68	64	58	125	133	32	36	42	140	125	00	01	00	---	(170)	103	107	134	130	130
10	MC	"	88	88				12	12				00	04				83	72			
11	EC	"	79	74	71			21	26	29			02	½	½			53	147	285		
12	T	"	50	47	44	121	143	50	53	56	129	132	02	01	00	(110)	(150)	98	94	121	125	137
13	CS	"	67					33					00					63				
14	MT	Engr	76	80		138	107	24	20		142	128	01	00		(140)	---	267	122		139	111
15	MS	"	86	81		133	120	14	19		129	118	01	00		(93)	---	352	98		133	119
16	MC	"	92	93		128	130	08	07		142	135	00	01		---	(125)	167	171		129	130
17	ST	"	80	72				20	28				00	00				120	50			
18	MT	Agri	66	69		140	122	34	31		144	119	00	01		---	(180)	140	100		141	121
19	MW	Bus	79	84				21	16				½	00				232	58			
20	LS	"	56	62				44	38				½	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	89	75		146	120	11	25		(124)	124	04	02		(167)	(145)	70	99		144	121
22	A	"	47	52		131	126	53	48		141	118	02	01		(115)	(120)	135	97		136	122
23	S	"	44	32				56	68				00	00				32	40			
24	MT	Engr	58					42					03					118				
25	MT	Agri	57					43					00					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 26(a)*

Item 26. (a) When you first enrolled in this college or university, how well do you feel that you were prepared, by virtue of your previous education and experience, for getting the most out of your courses?

A. Very well prepared (1)
B. Fairly well prepared (2, No Response)
C. Poorly prepared (3)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	12	19	12	134	131	60	57	64	133	118	28	24	24	137	114	¼	01	00	(200)	(100)	466	166	272	134	119
2	E	"	10	28	31	140	132	68	57	52	131	119	22	15	17	133	114	00	00	½	---	---	283	94	159	132	122
3	WS	"	14	22	19	127	120	61	59	58	138	131	25	19	23	132	128	00	½	00	---	(180)	272	148	374	135	128
4	M	"	19	33	24	133	132	68	58	68	132	122	13	09	08	125	123	00	00	00	---	---	425	193	216	131	125
5	S	"	58	55		140	128	35	37		123	132	07	08		125	113	00	¼		---	(100)	150	323		133	128
6	H	"	21	40	30	138	132	59	48	51	130	129	20	12	19	133	116	01	00	00	(188)	---	105	146	213	132	129
7	A	"	51	52		134	130	44	42		130	130	05	06		122	119	¼	¼		(160)	(130)	465	612		132	129
8	D	"	18	44	41	130	140	61	48	50	136	122	21	08	10	121	123	00	00	00	---	---	77	119	93	132	130
9	LS	"	27	30	28	140	142	52	52	60	127	123	21	18	12	122	129	00	00	00	---	---	103	107	134	130	130
10	MC	"	34	39				53	57				13	04				00	04				83	72			
11	EC	"	28	35	36			49	57	55			23	08	08			02	½	½			53	147	285		
12	T	"	22	19	14	126	141	49	60	51	124	140	29	21	35	126	127	01	01	01	(200)	(150)	98	94	121	125	137
13	CS	"	10					62					29					02					63				
14	MT	Engr	24	24		152	126	58	55		135	106	18	21		134	108	½	00		(140)	---	267	122		139	111
15	MS	"	29	22		139	127	60	64		132	119	11	13		122	108	00	00		---	---	352	98		133	119
16	MC	"	38	43		143	143	52	48		123	123	10	08		109	107	00	00		---	---	167	171		129	130
17	ST	"	26	28				59	58				15	14				00	00				120	50			
18	MT	Agri	13	10		147	149	63	60		144	120	24	30		130	113	00	01		---	(180)	140	100		141	121
19	MW	Bus	16	26				63	57				21	17				½	00				232	58			
20	LS	"	17	25				61	58				22	17				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	21	30		143	120	59	55		143	121	20	15		147	123	03	01		(150)	(110)	70	99		144	121
22	A	"	38	40		132	122	45	48		135	122	17	11		151	125	½	01		(80)	(120)	135	97		136	122
23	S	"	34	30				50	45				16	25				00	00				32	40			
24	MT	Engr	27					51					22					00					118				
25	MT	Agri	04					74					23					00					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 27*

Item 27. In general, do you have a satisfactory place to study, one that is free from noise and distraction and reasonably comfortable?

A. Yes, entirely satisfactory (1)
B. Fairly satisfactory (2, No Response)
C. No, quite unsatisfactory (3)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	41	33	32	132	116	42	52	52	135	120	16	15	16	136	120	¼	½	00	(200)	(90)	466	166	272	134	119
2	E	"	44	47	43	134	124	45	39	43	132	123	12	14	13	127	112	00	00	½	---	---	283	94	159	132	122
3	WS	"	37	36	37	137	133	51	53	50	135	125	12	12	13	129	124	00	½	¼	---	(180)	272	148	374	135	128
4	M	"	44	49	44	130	127	43	40	44	130	124	13	10	12	138	126	00	00	00	---	---	425	193	216	131	125
5	S	"	32	29		142	127	53	52		129	129	15	19		125	126	00	¼		---	(100)	150	323		133	128
6	H	"	38	38	35	140	132	47	51	50	135	129	15	11	15	106	118	01	00	00	(188)	---	105	146	213	132	129
7	A	"	32	35		132	138	51	52		135	126	17	13		$\overline{124}$	118	¼	¼		(90)	(120)	465	612		132	129
8	D	"	58	47	40	138	$\overline{132}$	30	44	44	122	128	12	08	16	$(1\overline{2}3)$	$1\overline{2}6$	00	00	00	---	---	77	119	93	132	130
9	LS	"	28	30	15	133	141	46	46	54	126	127	26	24	31	132	122	00	00	00	---	---	103	107	134	130	130
10	MC	"	54	46				37	46				08	08				00	03				83	72			
11	EC	"	30	33	39			49	49	39			21	18	23			02	½	½			53	147	285		
12	T	"	43	34	33	119	143	49	53	58	131	140	08	13	09	(122)	$1\underline{1}2$	00	00	01	---	---	98	94	121	125	137
13	CS	"	43					46					11					00					63				
14	MT	Engr	51	44		144	115	43	49		137	109	06	07		102	(101)	½	00		(140)	---	267	122		139	111
15	MS	"	44	53		$1\overline{3}8$	123	46	37		132	120	10	10		$\overline{116}$	99	00	00		---	---	352	98		133	119
16	MC	"	48	49		$1\overline{3}0$	128	42	40		133	137	09	11		$\overline{111}$	117	00	00		---	---	167	171		129	130
17	ST	"	34	30				47	46				19	24				00	00				120	50			
18	MT	Agri	47	38		138	120	48	57		145	122	05	05		(130)	(112)	00	01		---	(180)	140	100		141	121
19	MW	Bus	44	34				44	47				12	19				½	00				232	58			
20	LS	"	34	17				35	60				31	23				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	29	27		148	123	49	48		149	124	23	24		126	112	04	01		(150)	(110)	70	99		144	121
22	A	"	38	41		132	130	45	47		144	123	16	11		$1\overline{2}8$	89	½	01		(80)	(120)	135	97		136	122
23	S	"	38	32				41	60				22	08				00	00				32	40			
24	MT	Engr	50					45					05					00					118				
25	MT	Agri	62					32					06					00					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 28*

Item 28. In general, would you say you usually exert strong effort to do good work in your courses, or do you tend to do just enough to get by?

A. Usually exert strong effort (1)
B. Usually do not exert strong effort (2, 3, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	19	20	17	148	132	81	80	83	131	116	00	00	00	---	---	466	166	272	134	119
2	E	"	20	15	26	166	134	80	85	74	124	120	½	00	½	(150)	---	283	94	159	132	122
3	WS	"	25	24	26	150	146	75	76	74	130	122	½	02	¼	(120)	(147)	272	148	374	135	128
4	M	"	28	23	24	143	142	72	77	76	126	120	00	00	½	---	---	425	193	216	131	125
5	S	"	27	30		142	150	73	70		129	119	00	00		---	---	150	323		133	128
6	H	"	31	27	29	143	150	69	73	71	127	120	00	00	½	---	---	105	146	213	132	129
7	A	"	26	27		151	148	74	73		125	122	¼	00		(170)	---	465	612		132	129
8	D	"	30	28	27	138	145	70	72	73	129	124	00	00	01	---	---	77	119	93	132	130
9	LS	"	16	24	20	162	153	84	76	80	124	123	00	01	01	---	(10)	103	107	134	130	130
10	MC	"	19	24				81	76				00	00				83	72			
11	EC	"	09	17	21			91	83	79			00	½	00			53	147	285		
12	T	"	37	40	31	134	156	63	60	69	120	125	03	00	00	(143)	---	98	94	121	125	137
13	CS	"	21					79					00					63				
14	MT	Engr	27	26		144	116	73	74		137	109	½	00		(130)	---	267	122		139	111
15	MS	"	22	24		150	131	78	76		128	116	00	00		---	---	352	98		133	119
16	MC	"	41	34		146	153	59	66		118	119	½	01		(180)	(105)	167	171		129	130
17	ST	"	26	14				74	86				01	00				120	50			
18	MT	Agri	17	19		170	132	83	81		135	118	½	00		(100)	---	140	100		141	121
19	MW	Bus	26	12				74	88				00	00				232	58			
20	LS	"	20	11				80	89				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	20	15		154	136	80	85		141	118	00	00		---	---	70	99		144	121
22	A	"	27	24		149	149	73	76		132	114	00	01		---	(150)	135	97		136	122
23	S	"	41	32				59	68				00	00				32	40			
24	MT	Engr	28					72					02					118				
25	MT	Agri	38					62					02					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was adminis-

Table 29*

Item 29. In general, how well do you keep up-to-date in your study assignments?

A. Keep ahead (1)
B. Up-to-date (2, No Response)
C. Behind (3, 4)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	20	14	11	152	122	69	71	80	131	120	11	15	10	118	110	00	00	00	---	---	466	166	272	134	119
2	E	"	15	13	12	153	132	76	70	84	130	128	08	17	04	113	87	01	00	½	(163)	---	283	94	159	132	122
3	WS	"	15	18	16	149	133	77	72	79	133	127	08	10	04	124	125	½	02	¼	(120)	(153)	272	148	374	135	128
4	M	"	17	14	08	142	124	75	76	86	131	129	08	10	06	110	98	00	½	00	---	(80)	425	193	216	131	125
5	S	"	13	18		154	145	74	65		134	127	13	17		108	114	00	00		---	---	150	323		133	128
6	H	"	30	19	15	146	144	62	70	81	130	127	08	10	04	(92)	111	00	00	00	---	---	105	146	213	132	129
7	A	"	18	17		152	139	76	74		129	129	06	09		117	108	¼	00		(170)	---	465	612		132	129
8	D	"	10	09	08	(150)	141	78	76	78	130	132	12	14	14	(126)	111	00	00	00	---	---	77	119	93	132	130
9	LS	"	22	16	18	139	145	74	72	79	129	130	04	12	03	(95)	109	00	00	00	---	---	103	107	134	130	130
10	MC	"	17	12				70	71				13	17				00	00				83	72			
11	EC	"	08	13	07			68	53	70			24	34	23			00	½	01			53	147	285		
12	T	"	14	20	11	122	127	64	61	57	129	138	21	19	32	117	116	03	01	02	(143)	(150)	98	94	121	125	137
13	CS	"	18					62					21					00					63				
14	MT	Engr	30	25		144	117	67	69		137	113	03	07		(120)	(71)	00	00		---	---	267	122		139	111
15	MS	"	14	13		147	118	80	76		131	120	06	11		126	116	¼	00		(140)	---	352	98		133	119
16	MC	"	06	12		145	153	83	81		130	131	11	08		117	93	00	00		---	---	167	171		129	130
17	ST	"	09	04				79	70				12	26				00	00				120	50			
18	MT	Agri	24	20		150	127	74	75		139	120	03	05		(110)	(108)	½	00		(100)	---	140	100		141	121
19	MW	Bus	12	07				76	66				12	28				00	00				232	58			
20	LS	"	17	15				78	74				05	11				½	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	21	06		149	(138)	57	67		143	121	21	27		140	117	00	00		---	---	70	99		144	121
22	A	"	15	08		148	(126)	70	70		138	124	15	22		118	116	00	01		---	(150)	135	97		136	122
23	S	"	09	02				69	52				22	45				00	00				32	40			
24	MT	Engr	20					70					09					01					118				
25	MT	Agri	23					76					02					02					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 30 (Part 1)*

Item 30. Where are you living at the present time?

A. With parents or near relatives (1)
B. College dormitory (2)
C. Fraternity house (3)
D. Rooming or boarding house (4)

(Categories E and F on following page)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making Response D					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	11	10	13	125	105	32	43	74	138	119	14	22	02	135	125	22	22	06	131	125	466	166	272	134	119
2	E	"	57	69	77	125	119	00	00	00	---	---	04	11	14	128	125	24	14	03	145	132	283	94	159	132	122
3	WS	"	49	68	60	133	130	11	00	13	146	---	11	18	20	126	114	08	09	02	130	130	272	148	374	135	128
4	M	"	70	82	90	129	125	00	½	02	---	(110)	½	01	04	(150)	(145)	16	11	02	134	121	425	193	216	131	125
5	S	"	½	½		(140)	(115)	95	94		132	128	00	00		---	---	03	05		(162)	131	150	323		133	128
6	H	"	08	03	03	(90)	(96)	15	28	95	129	130	57	52	½	140	133	10	12	00	120	116	105	146	213	132	129
7	A	"	06	05		135	132	80	94		132	129	½	00		(133)	---	½	½		(150)	(137)	465	612		132	129
8	D	"	60	33	56	129	126	21	42	34	142	132	01	09	00	(180)	110	09	13	01	(111)	149	77	119	93	132	130
9	LS	"	15	03	04	129	(143)	40	66	92	141	133	00	00	00	---	---	22	14	00	120	128	103	107	134	130	130
10	MC	"	86	92				04	00				00	01				02	06				83	72			
11	EC	"	98	99	98			00	00	00			00	00	00			00	00	½			53	147	285		
12	T	"	20	35	44	124	143	31	43	50	132	135	11	13	00	97	124	10	05	02	121	(152)	98	94	121	125	137
13	CS	"	05					41					11					13					63				
14	MT	Engr	08	09		124	97	16	30		144	113	18	22		134	118	32	29		142	110	267	122		139	111
15	MS	"	66	76		131	123	11	00		131	---	01	03		(120)	(107)	10	16		148	105	352	98		133	119
16	MC	"	52	53		130	128	17	23		121	131	07	16		125	137	07	05		126	(114)	167	171		129	130
17	ST	"	09	02				14	02				08	12				38	74				120	50			
18	MT	Agri	03	07		(105)	(110)	19	31		153	122	13	20		131	125	35	30		138	119	140	100		141	121
19	MW	Bus	34	53				03	10				06	07				40	24				232	58			
20	LS	"	08	02				44	85				00	00				18	06				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	96	99		143	121	00	00		---	---	00	00		---	---	01	01		(100)	(150)	70	99		144	121
22	A	"	10	04		141	(128)	87	94		137	123	00	00		---	---	½	00		(90)	---	135	97		136	122
23	S	"	00	00				88	100				03	00				00	00				32	40			
24	MT	Engr	04					09					20					17					118				
25	MT	Agri	02					13					19					17					53				

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[*] A brief explanation of the organization of this table and the symbols employed is given on page A1.

[**] Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 30 (Part 2)*

Item 30. Where are you living at the present time?

E. Apartment or house (self-rented or owned)(5)
F. Other (6)

(Categories A, B, C and D on preceding page)

Group	Univ.	Division	Students Making Response E					Students Making Response F					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	12	00	½	132	---	08	02	04	137	(82)	½	00	½	(185)	---	466	166	272	134	119
2	E	"	11	03	01	142	(117)	03	03	03	(144)	(130)	01	00	½	(143)	---	283	94	159	132	122
3	WS	"	12	½	01	147	(150)	08	04	04	131	(140)	½	01	½	(120)	(150)	272	148	374	135	128
4	M	"	11	00	½	135	---	02	05	02	149	132	00	00	00	---	---	425	193	216	131	125
5	S	"	01	00		(95)	---	00	01		---	(138)	00	00		---	---	150	323		133	128
6	H	"	06	½	½	(136)	(108)	05	04	½	(136)	(123)	00	00	00	---	---	105	146	213	132	129
7	A	"	02	¼		138	(50)	10	01		124	(115)	½	¼		(167)	(110)	465	612		132	129
8	D	"	08	01	01	(133)	(150)	01	02	08	(160)	(100)	00	00	00	---	---	77	119	93	132	130
9	LS	"	05	01	00	(102)	(100)	18	14	04	121	115	01	02	00	(180)	(150)	103	107	134	130	130
10	MC	"	06	00				02	01				00	00				83	72			
11	EC	"	00	½	½			00	½	½			02	00	½			53	147	285		
12	T	"	21	03	02	133	(140)	03	01	02	(103)	(140)	03	00	01	(143)	---	98	94	121	125	137
13	CS	"	21					10					00					63				
14	MT	Engr	14	01		141	(80)	12	08		136	112	½	01		(135)	(60)	267	122		139	111
15	MS	"	07	01		133	(150)	04	03		125	(117)	00	00		---	---	352	98		133	119
16	MC	"	16	02		141	(150)	01	½		(100)	(170)	01	00		(125)	---	167	171		129	130
17	ST	"	18	02				11	08				01	00				120	50			
18	MT	Agri	12	00		158	---	18	11		138	121	½	01		(100)	(130)	140	100		141	121
19	MW	Bus	10	03				06	02				½	00				232	58			
20	LS	"	08	00				20	08				½	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	03	00		(205)	---	00	00		---	---	00	00		---	---	70	99		144	121
22	A	"	02	00		(133)	---	½	01		(20)	(30)	00	01		---	(150)	135	97		136	122
23	S	"	09	00				00	00				00	00				32	40			
24	MT	Engr	38					09					02					118				
25	MT	Agri	40					08					02					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 31*

Item 31. How large was the community in which your home was located during the time you were in high school? (If your residence was a suburb or town in a metropolitan area, check the population of the larger area.)

A. Less than 2,500 population (1, 2)
B. 2,500 to 100,000 population (3, 4)
C. Over 100,000 population (5)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionniare Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
			GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																								
1	CS	Arts	40	34	30	136	110	53	53	56	131	121	08	12	14	144	136	00	½	½	---	(170)	466	166	272	134	119
2	E	"	22	14	12	136	136	25	32	24	138	116	52	54	62	128	122	½	00	01	(150)	---	283	94	159	132	122
3	WS	"	20	13	12	135	119	28	22	25	131	122	52	64	62	138	131	½	02	01	(120)	(130)	272	148	374	135	128
4	M	"	12	07	06	124	100	54	48	47	131	122	34	45	47	134	133	00	½	00	---	(50)	425	193	216	131	125
5	S	"	07	10		136	129	45	42		131	131	47	46		133	126	½	½		(140)	(105)	150	323		133	128
6	H	"	18	14	08	125	124	56	45	47	131	126	26	40	45	139	132	00	½	01	---	(128)	105	146	213	132	129
7	A	"	12	10		122	126	45	44		132	126	43	45		134	133	½	01		(165)	(136)	465	612		132	129
8	D	"	14	09	03	159	122	26	39	34	121	121	60	51	62	130	138	00	01	00	---	(150)	77	119	93	132	130
9	LS	"	19	24	15	135	112	55	37	50	128	126	25	36	35	129	144	00	02	00	---	(170)	103	107	134	130	130
10	MC	"	05	06				22	11				74	83				00	00				83	72			
11	EC	"	02	½	00			00	02	03			98	97	97			00	00	00			53	147	285		
12	T	"	10	06	07	126	(115)	36	28	21	122	135	51	66	71	126	141	03	00	02	(143)	---	98	94	121	125	137
13	CS	"	43					49					08					00					63				
14	MT	Engr	34	40		134	107	54	48		143	110	12	12		135	125	00	01		---	(150)	267	122		139	111
15	MS	"	22	13		133	108	18	12		138	116	60	74		131	122	00	00		---	---	352	98		133	119
16	MC	"	08	10		106	136	31	30		125	128	60	59		135	131	00	00		---	---	167	171		129	130
17	ST	"	30	20				44	52				26	28				00	00				120	50			
18	MT	Agri	67	74		146	120	25	18		131	115	07	08		134	(139)	½	00		(100)	---	140	100		141	121
19	MW	Bus	16	07				36	26				48	67				00	00				232	58			
20	LS	"	13	09				55	34				32	57				00	00				142	65			
			GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																								
21	EC	Arts	00	00		---	---	01	02		(130)	(110)	99	98		144	121	00	00		---	---	70	99		144	121
22	A	"	07	13		137	114	40	37		141	120	51	46		132	126	02	03		(160)	(133)	135	97		136	122
23	S	"	22	15				31	38				47	45				00	02				32	40			
24	MT	Engr	33					46					20					01					118				
25	MT	Agri	55					32					11					02					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

Table 32*

Item 32: When were you born?

Veterans: A. Before 1924 (1, 2)
B. 1924 or 1925 (3, 4)
C. Later than 1925 (5-9, No Response)

Nonveterans: A. Before 1928 (1-6)
B. 1928 (7, No Response)
C. Later than 1928 (8, 9)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	19	10	14	145	103	35	63	63	131	121	45	27	23	132	120	00	00	00	---	---	466	166	272	134	119
2	E	"	26	06	13	142	(125)	38	74	69	131	122	35	19	18	126	118	½	00	½	(150)	---	283	94	159	132	122
3	WS	"	22	10	17	159	144	34	71	61	124	124	44	19	22	132	134	½	01	00	(120)	(150)	272	148	374	135	128
4	M	"	29	09	11	138	121	41	70	60	127	127	30	21	29	130	123	00	00	00	---	---	425	193	216	131	125
5	S	"	01	05		(90)	113	22	67		135	126	77	28		133	136	00	00		---	---	150	323		133	128
6	H	"	10	06	05	165	(130)	41	69	76	128	126	50	25	18	129	134	00	00	00	---	---	105	146	213	132	129
7	A	"	06	09		133	112	30	65		133	129	64	26		131	135	½	00		(135)	---	465	612		132	129
8	D	"	08	04	08	(155)	(120)	23	69	67	142	129	69	27	26	125	133	00	00	00	---	---	77	119	93	132	130
9	LS	"	15	08	10	136	(136)	33	78	78	126	130	52	13	12	131	129	00	00	00	---	---	103	107	134	130	130
10	MC	"	10	04				35	74				55	22				00	00				83	72			
11	EC	"	11	½	½			21	29	20			68	71	79			00	00	00			53	147	285		
12	T	"	51	21	44	125	146	33	52	40	120	133	16	27	16	138	140	03	00	00	(143)	---	98	94	121	125	137
13	CS	"	64					25					11					00					63				
14	MT	Engr	23	06		142	(101)	31	67		135	112	46	27		140	111	00	00		---	---	267	122		139	111
15	MS	"	16	06		132	(135)	29	76		135	116	54	17		132	129	00	00		---	---	352	98		133	119
16	MC	"	35	08		130	129	40	81		126	131	25	12		134	126	00	00		---	---	167	171		129	130
17	ST	"	28	26				26	50				46	24				00	00				120	50			
18	MT	Agri	28	15		160	131	39	63		135	116	33	22		130	128	½	00		(100)	---	140	100		141	121
19	MW	Bus	23	10				34	74				42	16				00	00				232	58			
20	LS	"	18	08				39	63				44	09				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	03	24		(140)	110	51	68		145	122	46	08		143	(141)	00	00		---	---	70	99		144	121
22	A	"	11	37		131	116	36	58		142	127	53	05		134	(114)	00	01		---	(150)	135	97		136	122
23	S	"	25	42				41	52				34	05				00	00				32	40			
24	MT	Engr	86					13					00					01					118				
25	MT	Agri	87					11					00					02					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 34[*]

Item 34. Are you:

A. Single, not engaged (1, No Response)
B. Single, engaged (2)
C. Married, now or previously (3, 4)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making Response C		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
			VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**									
1	CS	Arts	79	133	08	129	13	141	¼	(140)	466	134
2	E	"	70	130	12	133	18	139	½	(150)	283	132
3	WS	"	76	134	10	128	14	146	½	(130)	272	135
4	M	"	77	128	09	127	14	147	¼	(130)	425	131
5	S	"	94	135	06	(102)	00	---	01	(120)	150	133
6	H	"	82	131	10	130	08	(149)	00	---	105	132
7	A	"	91	132	06	125	03	142	½	(140)	465	132
8	D	"	80	129	12	(134)	08	(152)	01	(90)	77	132
9	LS	"	84	127	14	147	03	(133)	00	---	103	130
10	MC	"	81		10		10		00		83	
11	EC	"	89		11		00		00		53	
12	T	"	76	124	04	(110)	20	131	02	(135)	98	125
13	CS	"	54		10		36		00		63	
14	MT	Engr	75	138	08	146	17	141	00	---	267	139
15	MS	"	79	134	10	126	11	134	¼	(150)	352	133
16	MC	"	69	130	08	113	23	133	00	---	167	129
17	ST	"	77		08		16		00		120	
18	MT	Agri	76	138	09	138	15	158	½	(100)	140	141
19	MW	Bus	73		14		13		00		232	
20	LS	"	76		12		12		½		142	
			VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE									
21	EC	Arts	81	144	16	133	03	(205)	00	---	70	144
22	A	"	91	138	06	(119)	03	(122)	½	(90)	135	136
23	S	"	81		12		06		00		32	
24	MT	Engr	45		08		47		01		118	
25	MT	Agri	43		11		45		02		53	

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[*] A brief explanation of the organization of this table and the symbols employed is given on page A1.

[**] Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was ad-

Item 35. (a) About how long have you been married?

A. One year or more (1, 2, 3, 4, 5)
B. Less than one year (6)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**										
1	CS	Arts	50	142	50	141	00	---	62	141
2	E	"	55	142	37	141	08	(112)	51	139
3	WS	"	64	153	36	134	00	---	39	146
4	M	"	69	141	30	161	02	(140)	61	147
5	S	"	No Married Veterans							
6	H	"	38	(181)	62	(130)	00	---	8	(149)
7	A	"	50	(148)	50	(135)	00	---	12	142
8	D	"	83	(152)	17	(150)	00	---	6	(152)
9	LS	"	33	(100)	67	(150)	00	---	3	(133)
10	MC	"	50		50		00		8	
11	EC	"	No Married Veterans							
12	T	"	85	129	15	(140)	00	---	20	131
13	CS	"	48		48		04		23	
14	MT	Engr	72	137	28	149	00	---	46	141
15	MS	"	62	145	33	121	05	(90)	39	134
16	MC	"	68	135	29	128	03	(120)	38	133
17	ST	"	58		32		10		19	
18	MT	Agri	71	168	29	(133)	00	---	21	158
19	MW	Bus	50		47		03		30	
20	LS	"	41		53		06		17	
VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE										
21	EC	Arts	50	(210)	50	(200)	00	---	2	(205)
22	A	"	25	(120)	50	(105)	25	(160)	4	(122)
23	S	"	100		00		00		2	
24	MT	Engr	84		16		00		55	
25	MT	Agri	79		21		00		24	

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 35(b)*

Item 35. (b) How many children do you have?

A. None (1)
B. One or more (2, 3, 4)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**										
1	CS	Arts	77	144	23	131	00	---	62	141
2	E	"	69	143	26	135	06	(110)	51	139
3	WS	"	67	144	33	151	00	---	39	146
4	M	"	75	150	25	135	00	---	61	147
5	S	"	No Married Veterans							
6	H	"	75	(135)	25	(193)	00	---	8	(149)
7	A	"	75	(138)	25	(153)	00	---	12	142
8	D	"	83	(152)	17	(150)	00	---	6	(152)
9	LS	"	100	(133)	00	---	00	---	3	(133)
10	MC	"	88		12		00		8	
11	EC	"	No Married Veterans							
12	T	"	65	130	35	(133)	00	---	20	131
13	CS	"	83		13		04		23	
14	MT	Engr	74	149	26	118	00	---	46	141
15	MS	"	67	136	28	136	05	(90)	39	134
16	MC	"	71	129	24	(147)	05	(120)	38	133
17	ST	"	63		26		10		19	
18	MT	Agri	57	152	43	(166)	00	---	21	158
19	MW	Bus	87		10		03		30	
20	LS	"	71		24		06		17	
VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE										
21	EC	Arts	100	(205)	00	---	00	---	2	(205)
22	A	"	50	(105)	25	(120)	25	(160)	4	(122)
23	S	"	50		50		00		2	
24	MT	Engr	54		46		00		55	
25	MT	Agri	62		38		00		24	

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Item 35. (d) How well satisfied are you with the living arrangements you and your wife (husband) have at the present time?

A. Satisfied (2, 3)
B. Dissatisfied (4, 5)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**										
1	CS	Arts	64	142	34	139	02	(150)	62	141
2	E	"	53	139	37	141	10	(134)	51	139
3	WS	"	67	145	33	148	00	---	39	146
4	M	"	61	144	38	150	02	(180)	61	147
5	S	"	No Married Veterans							
6	H	"	88	(142)	12	(198)	00	---	8	(149)
7	A	"	58	(141)	42	(142)	00	---	12	142
8	D	"	83	(164)	17	(90)	00	---	6	(152)
9	LS	"	67	(125)	33	(150)	00	---	3	(133)
10	MC	"	62		25		12		8	
11	EC	"	No Married Veterans							
12	T	"	65	131	30	(125)	05	(170)	20	131
13	CS	"	61		30		09		23	
14	MT	Engr	80	145	20	(123)	00	---	46	141
15	MS	"	54	141	41	130	05	(90)	39	134
16	MC	"	55	141	40	122	05	(125)	38	133
17	ST	"	42		37		21		19	
18	MT	Agri	86	164	10	(120)	05	(120)	21	158
19	MW	Bus.	50		43		07		30	
20	LS	"	65		29		06		17	
VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE										
21	EC	Arts	100	(205)	00	---	00	---	2	(205)
22	A	"	25	(120)	50	(105)	25	(160)	4	(122)
23	S	"	100		00		00		2	
24	MT	Engr	80		18		02		55	
25	MT	Agri	79		21		00		24	

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 35(e)*

Item 35. (e) In general, do you feel that as a married student you are handicapped or benefited, relative to single students, in your studies?

A. Handicapped by being married, or neither handicapped nor benefited (1, 2)
B. Benefited by being married (3)

Group	Univ.	Division	Veterans Making Response A		Veterans Making Response B		Veterans Making No Response		All Questionnaire Respondents	
			Per Cent	Mean AAG	Per Cent	Mean AAG	Per Cent	Mean AAG	Number	Mean AAG
			VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**							
1	CS	Arts	34	135	61	145	05	(140)	62	141
2	E	"	39	136	55	145	06	(110)	51	139
3	WS	"	41	147	59	146	00	---	39	146
4	M	"	26	139	69	151	05	(123)	61	147
5	S	"	No Married Veterans							
6	H	"	25	(138)	75	(153)	00	---	8	(149)
7	A	"	25	(153)	75	(138)	00	---	12	142
8	D	"	33	(120)	67	(168)	00	---	6	(152)
9	LS	"	67	(125)	33	(150)	00	---	3	(133)
10	MC	"	38		62		00		8	
11	EC	"	No Married Veterans							
12	T	"	45	(131)	55	131	00	---	20	131
13	CS	"	35		56		09		23	
14	MT	Engr	41	128	59	150	00	---	46	141
15	MS	"	31	125	64	142	05	(90)	39	134
16	MC	"	45	131	53	136	03	(120)	38	133
17	ST	"	05		58		37		19	
18	MT	Agri	43	(167)	52	148	05	(190)	21	158
19	MW	Bus	33		63		03		30	
20	LS	"	29		65		06		17	
			VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE							
21	EC	Arts	00	---	100	(205)	00	---	2	(205)
22	A	"	50	(110)	25	(110)	25	(160)	4	(122)
23	S	"	00		100		00		2	
24	MT	Engr	38		62		00		55	
25	MT	Agri	33		58		08		24	

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* A brief explanation of the organization of this table and the symbols employed is given on page A1.

** Students in these groups (except 12, 13, and 17) were freshmen when the question-

Table 36*

Item 36. On the whole, how well satisfied are you with the kind of education you are getting?

A. Very well satisfied (1)
B. Fairly well satisfied (2, No Response)
C. Somewhat or very much dissatisfied (3, 4)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent MV	Per Cent MN	Per Cent FN	Mean AAG MV	Mean AAG MN	Per Cent MV	Per Cent MN	Per Cent FN	Mean AAG MV	Mean AAG MN	Per Cent MV	Per Cent MN	Per Cent FN	Mean AAG MV	Mean AAG MN	Per Cent MV	Per Cent MN	Per Cent FN	Mean AAG MV	Mean AAG MN	Number MV	Number MN	Number FN	Mean AAG MV	Mean AAG MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	12	14	14	140	136	52	55	56	141	116	36	31	30	122	116	00	00	00	---	---	466	166	272	134	119
2	E	"	22	11	24	142	126	56	66	57	134	125	22	23	18	119	111	00	00	½	---	---	283	94	159	132	122
3	WS	"	11	07	22	134	117	52	60	53	141	130	36	34	25	127	127	½	01	¼	(130)	(140)	272	148	374	135	128
4	M	"	11	18	18	136	138	58	53	56	131	128	31	28	27	129	113	¼	½	00	(110)	(110)	425	193	216	131	125
5	S	"	40	44		144	130	48	46		126	127	12	10		119	122	02	½		(140)	(115)	150	323		133	128
6	H	"	29	29	30	143	139	52	53	55	131	128	19	18	15	121	112	00	00	00	---	---	105	146	213	132	129
7	A	"	35	40		139	135	50	49		131	127	15	11		120	116	00	½		---	(133)	465	612		132	129
8	D	"	34	31	36	147	143	47	53	48	127	129	20	16	16	115	106	00	01	00	---	(100)	77	119	93	132	130
9	LS	"	23	22	24	143	142	48	57	54	130	131	29	21	22	118	114	01	00	00	(70)	---	103	107	134	130	130
10	MC	"	10	22				59	51				31	26				00	01				83	72			
11	EC	"	09	20	19			43	42	51			47	37	30			00	½	00			53	147	285		
12	T	"	54	62	60	127	143	34	27	26	126	140	12	12	14	118	102	00	01	00	---	(170)	98	94	121	125	137
13	CS	"	11					56					33					00					63				
14	MT	Engr	15	10		155	129	58	50		144	115	26	40		116	102	½	00		(100)	---	267	122		139	111
15	MS	"	14	18		132	134	63	60		137	119	22	21		121	107	¼	01		(110)	(130)	352	98		133	119
16	MC	"	47	44		135	144	44	43		125	123	09	13		121	108	½	01		(120)	(65)	167	171		129	130
17	ST	"	20	18				67	64				13	18				00	00				120	50			
18	MT	Agri	13	11		157	117	59	68		142	124	29	21		133	113	00	00		---	---	140	100		141	121
19	MW	Bus	18	05				58	55				24	40				00	00				232	58			
20	LS	"	31	14				53	66				16	20				00	02				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	13	13		(136)	135	60	54		142	121	27	32		152	115	01	00		(120)	---	70	99		144	121
22	A	"	36	40		135	134	48	46		136	117	16	13		140	107	½	00		(120)	---	135	97		136	122
23	S	"	31	42				47	48				22	10				00	02				32	40			
24	MT	Engr	11					51					38					00					118				
25	MT	Agri	06					64					30					00					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 37*

Item 37. Of the courses you are now taking, how many would you say you are really interested in?

A. Half or fewer (1, 2, 3)
B. Most or all (4, 5, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	53	55	54	129	114	47	45	46	140	126	00	00	00	---	---	466	166	272	134	119
2	E	"	45	48	48	124	109	55	52	52	139	133	00	01	½	---	(80)	283	94	159	132	122
3	WS	"	40	35	32	127	125	60	65	68	141	129	½	03	½	(130)	(150)	272	148	374	135	128
4	M	"	35	38	35	124	121	65	62	65	135	128	00	½	00	---	(110)	425	193	216	131	125
5	S	"	50	45		125	123	50	55		140	132	02	01		(153)	(110)	150	323		133	128
6	H	"	48	43	52	121	124	52	57	48	142	132	00	00	00	---	---	105	146	213	132	129
7	A	"	53	51		122	123	47	49		143	135	00	¼		---	(130)	465	612		132	129
8	D	"	52	52	59	126	127	48	48	41	137	133	00	01	00	---	(100)	77	119	93	132	130
9	LS	"	44	37	48	126	122	56	63	52	132	134	01	00	00	(70)	---	103	107	134	130	130
10	MC	"	48	51				52	49				00	01				83	72			
11	EC	"	60	60	55			40	40	45			00	½	½			53	147	285		
12	T.	"	22	23	26	121	119	78	77	74	126	143	00	00	02	---	---	98	94	121	125	137
13	CS	"	48					52					00					63				
14	MT	Engr	43	52		135	108	57	48		142	115	½	00		(140)	---	267	122		139	111
15	MS	"	48	51		131	115	52	49		135	124	¼	01		(170)	(130)	352	98		133	119
16	MC	"	11	18		127	110	89	82		130	135	½	½		(120)	(110)	167	171		129	130
17	ST	"	27	34				73	66				00	00				120	50			
18	MT	Agri	32	35		124	117	68	65		149	123	00	00		---	---	140	100		141	121
19	MW	Bus	31	71				69	29				00	00				232	58			
20	LS	"	50	62				50	38				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	43	54		142	112	57	46		145	131	01	00		(120)	---	70	99		144	121
22	A	"	36	31		126	108	64	69		142	128	½	00		(120)	---	135	97		136	122
23	S	"	47	32				53	68				00	00				32	40			
24	MT	Engr	30					70					00					118				
25	MT	Agri	24					76					00					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was adminis-

Table 38[*]

Item 38. Do you ever feel that the things you are studying in college are not really worth the time spent on them?

A. Yes, frequently (1)
B. Sometimes (2, No Response)
C. Seldom or never (3, 4)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	29	24	24	125	110	50	55	54	135	122	21	20	22	144	122	00	00	00	---	---	466	166	272	134	119
2	E	"	29	20	20	124	97	44	55	48	130	127	27	24	32	145	131	00	00	½	---	---	283	94	159	132	122
3	WS	"	20	20	17	126	132	46	47	48	132	123	34	33	35	144	132	½	01	¼	(130)	(140)	272	148	374	135	128
4	M	"	21	22	18	130	130	48	42	50	125	121	31	36	32	141	128	00	01	00	---	(160)	425	193	216	131	125
5	S	"	17	13		124	117	50	48		130	131	33	38		141	128	02	½		(123)	(115)	150	323		133	128
6	H	"	25	24	24	118	128	44	42	53	129	120	31	34	24	148	140	00	00	½	---	---	105	146	213	132	129
7	A	"	23	16		121	122	48	48		130	127	30	37		144	135	00	¼		---	(145)	465	612		132	129
8	D	"	26	28	27	114	132	44	49	53	136	126	30	24	20	141	135	00	01	00	---	(100)	77	119	93	132	130
9	LS	"	29	08	25	119	(136)	42	49	47	134	130	29	43	28	134	129	01	00	00	(70)	---	103	107	134	130	130
10	MC	"	26	18				41	44				32	38				00	03				83	72			
11	EC	"	28	20	19			51	54	54			21	26	27			00	01	½			53	147	285		
12	T	"	08	07	06	(125)	(131)	35	29	26	127	121	57	64	68	124	145	00	01	01	---	(120)	98	94	121	125	137
13	CS	"	40					40					21					02					63				
14	MT	Engr	16	21		132	99	53	49		138	109	31	30		144	123	00	00		---	---	267	122		139	111
15	MS	"	20	22		126	119	53	53		131	122	27	24		141	115	00	01		---	(130)	352	98		133	119
16	MC	"	10	12		141	101	44	42		123	128	46	46		133	141	½	½		(120)	(110)	167	171		129	130
17	ST	"	14	24				56	48				30	28				00	00				120	50			
18	MT	Agri	19	24		129	127	49	49		139	115	32	27		151	126	½	00		(180)	---	140	100		141	121
19	MW	Bus	23	43				49	45				28	12				00	00				232	58			
20	LS	"	20	25				55	58				25	17				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	27	21		143	111	40	54		143	121	33	24		145	130	01	00		(120)	---	70	99		144	121
22	A	"	15	19		128	116	37	41		128	118	48	40		145	129	½	00		(120)	---	135	97		136	122
23	S	"	12	18				44	38				44	45				00	00				32	40			
24	MT	Engr	18					58					25					00					118				
25	MT	Agri	24					60					15					00					53				

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[*] A brief explanation of the organization of this table and the symbols employed is given on page A1.

[**] Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 39*

Item 39. Do you sometimes feel worried and anxious or upset?

A. Yes, frequently (1)
B. Occasionally (2, No Response)
C. Seldom or never (3)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
			GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																								
1	CS	Arts	21	29	35	128	120	59	56	56	134	118	20	15	10	141	121	00	00	00	---	---	466	166	272	134	119
2	E	"	20	22	36	120	113	57	64	52	138	125	23	14	12	130	119	00	00	½	---	---	283	94	159	132	122
3	WS	"	20	21	27	131	126	56	61	54	139	128	24	18	19	129	129	½	01	00	(130)	(140)	272	148	374	135	128
4	M	"	22	23	34	129	127	58	60	54	131	123	20	17	12	133	133	¼	½	½	(130)	(110)	425	193	216	131	125
5	S	"	18	14		114	130	56	55		139	127	26	32		132	130	01	½		(155)	(115)	150	323		133	128
6	H	"	22	25	23	112	123	60	51	61	135	129	18	24	16	147	133	00	00	00	---	---	105	146	213	132	129
7	A	"	15	17		118	120	59	58		132	129	26	26		140	134	½	½		(145)	(120)	465	612		132	129
8	D	"	25	21	31	118	119	51	56	57	133	129	25	23	12	143	142	00	01	00	---	(100)	77	119	93	132	130
9	LS	"	16	21	31	140	115	61	52	56	125	131	23	27	13	136	139	01	00	00	(70)	---	103	107	134	130	130
10	MC	"	20	15				49	62				30	22				00	01				83	72			
11	EC	"	32	16	32			58	63	54			09	21	14			00	½	00			53	147	285		
12	T	"	15	18	39	126	129	54	55	43	123	140	31	27	18	128	138	00	00	00	---	---	98	94	121	125	137
13	CS	"	25					57					18					00					63				
14	MT	Engr	16	18		129	117	56	53		138	110	28	29		145	109	00	00		---	---	267	122		139	111
15	MS	"	11	12		129	112	58	47		130	117	30	41		140	124	00	01		---	(130)	352	98		133	119
16	MC	"	16	13		121	123	58	64		130	132	26	23		133	130	½	½		(120)	(110)	167	171		129	130
17	ST	"	16	24				63	56				21	20				00	00				120	50			
18	MT	Agri	21	16		134	114	49	63		148	125	29	21		134	115	00	00		---	---	140	100		141	121
19	MW	Bus	19	22				59	47				22	31				00	00				232	58			
20	LS	"	20	18				59	62				21	20				00	00				142	65			
			GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																								
21	EC	Arts	21	23		141	120	53	59		146	119	26	18		142	129	01	00		(120)	---	70	99		144	121
22	A	"	21	21		135	132	57	58		137	120	22	22		136	118	½	00		(120)	---	135	97		136	122
23	S	"	16	25				56	50				28	25				00	02				32	40			
24	MT	Engr	17					58					25					00					118				
25	MT	Agri	08					66					26					00					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 40(a)*

Item 40. Below are listed some sources of worry and anxiety which seem to be bothering a good many students at the present time. For each problem check the appropriate category to show how much you have been bothered by the problem during this term.

(a) Making ends meet financially

A. Bothered some, or bothered very much (1, 2)
B. Little or not at all (3, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
			GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																			
1	CS	Arts	65	45	39	132	111	35	55	61	138	126	01	00	01	(145)	---	466	166	272	134	119
2	E	"	76	47	42	131	121	24	53	58	138	122	½	04	01	(80)	(115)	283	94	159	132	122
3	WS	"	59	47	30	137	125	41	53	70	133	131	½	½	02	(130)	(70)	272	148	374	135	128
4	M	"	67	49	40	131	127	33	51	60	131	124	00	01	01	---	(160)	425	193	216	131	125
5	S	"	39	39		130	125	61	61		134	130	01	02		(130)	(125)	150	323		133	128
6	H	"	62	44	15	130	130	38	56	85	135	127	00	01	01	---	(118)	105	146	213	132	129
7	A	"	46	44		132	127	54	56		132	130	02	¼		148	(150)	465	612		132	129
8	D	"	66	31	26	136	128	34	69	74	122	131	00	00	00	---	---	77	119	93	132	130
9	LS	"	74	48	31	126	127	26	52	69	139	133	01	00	00	(70)	---	103	107	134	130	130
10	MC	"	63	42				37	58				01	03				83	72			
11	EC	"	58	41	31			42	59	69			00	½	01			53	147	285		
12	T	"	67	51	50	130	144	33	49	50	114	131	01	00	01	(100)	---	98	94	121	125	137
13	CS	"	67					33					02					63				
14	MT	Engr	53	40		136	109	47	60		141	113	01	00		(97)	---	267	122		139	111
15	MS	"	59	37		131	116	41	63		136	121	02	02		(148)	(145)	352	98		133	119
16	MC	"	65	48		128	128	35	52		132	132	½	02		(110)	(170)	167	171		129	130
17	ST	"	76	64				24	36				00	00				120	50			
18	MT	Agri	52	36		141	117	48	64		141	123	01	00		(155)	---	140	100		141	121
19	MW	Bus	76	43				24	57				00	00				232	58			
20	LS	"	65	45				35	55				00	00				142	65			
			GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																			
21	EC	Arts	54	50		144	122	46	50		143	119	03	01		(140)	(100)	70	99		144	121
22	A	"	43	47		144	127	57	53		131	118	00	02		---	(70)	135	97		136	122
23	S	"	47	40				53	60				00	00				32	40			
24	MT	Engr	53					47					00					118				
25	MT	Agri	51					49					00					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 40(b)*

Item 40. Below are listed some sources of worry and anxiety which seem to be bothering a good many students at the present time. For each problem check the appropriate category to show how much you have been bothered by the problem during this term.

(b) Lack of adequate housing accommodations

A. Bothered some, or bothered very much (1, 2)
B. Little or not at all (3, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	26	22	11	135	121	74	78	89	134	119	02	½	02	(131)	(120)	466	166	272	134	119
2	E	"	17	10	05	137	(122)	83	90	95	131	122	03	04	02	(104)	(110)	283	94	159	132	122
3	WS	"	16	07	04	141	161	84	93	96	134	125	½	02	02	(180)	(127)	272	148	374	135	128
4	M	"	17	05	06	139	127	83	95	94	129	125	½	01	½	(117)	(160)	425	193	216	131	125
5	S	"	16	23		132	134	84	77		133	126	02	02		(127)	(114)	150	323		133	128
6	H	"	10	12	03	115	122	90	88	97	134	129	00	01	02	---	(128)	105	146	213	132	129
7	A	"	21	10		135	130	79	90		131	129	03	01		131	(144)	465	612		132	129
8	D	"	06	13	04	(164)	138	94	87	96	129	129	01	00	00	(90)	---	77	119	93	132	130
9	LS	"	33	30	16	128	128	67	70	84	130	131	01	00	½	(70)	---	103	107	134	130	130
10	MC	"	12	01				88	99				02	03				83	72			
11	EC	"	19	13	13			81	87	87			02	½	01			53	147	285		
12	T	"	24	17	10	134	126	76	83	90	122	140	04	00	01	(110)	---	98	94	121	125	137
13	CS	"	24					76					02					63				
14	MT	Engr	15	11		127	105	85	89		141	112	01	00		(93)	---	267	122		139	111
15	MS	"	15	09		137	(119)	85	91		132	119	02	01		(148)	(130)	352	98		133	119
16	MC	"	20	12		131	135	80	88		129	130	02	02		(138)	(160)	167	171		129	130
17	ST	"	37	18				63	82				01	00				120	50			
18	MT	Agri	19	08		140	(119)	81	92		141	121	03	00		(158)	---	140	100		141	121
19	MW	Bus	25	07				75	93				½	02				232	58			
20	LS	"	34	22				66	78				½	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	21	10		135	125	79	90		146	120	03	02		(140)	(125)	70	99		144	121
22	A	"	14	07		131	(120)	86	93		137	122	½	01		(180)	(100)	135	97		136	122
23	S	"	19	05				81	95				03	00				32	40			
24	MT	Engr	18					82					03					118				
25	MT	Agri	19					81					02					53				

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* of this table and the symbols employed is given on page A1.

Table 40(c)

Item 40. Below are listed some sources of worry and anxiety which seem to be bothering a good many students at the present time. For each problem check the appropriate category to show how much you have been bothered by the problem during this term.

(c) Illness or death in your family

A. Bothered some, or bothered very much (1, 2)
B. Little or not at all (3, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	21	17	23	131	108	79	83	77	135	121	02	01	02	135	(115)	466	166	272	134	119
2	E	"	15	12	22	127	114	85	88	78	133	123	03	05	02	(108)	(116)	283	94	159	132	122
3	WS	"	23	17	19	142	122	77	83	81	133	129	01	02	02	(180)	(127)	272	148	374	135	128
4	M	"	20	18	27	133	125	80	82	73	130	125	½	01	00	(113)	(160)	425	193	216	131	125
5	S	"	13	12		141	129	87	88		131	128	01	02		(130)	(138)	150	323		133	128
6	H	"	19	16	19	118	137	81	84	81	135	127	00	½	02	---	(108)	105	146	213	132	129
7	A	"	18	14		140	126	82	86		130	129	03	½		141	(140)	465	612		132	129
8	D	"	23	23	29	132	129	77	77	71	131	130	01	00	00	(90)	---	77	119	93	132	130
9	LS	"	18	15	28	123	110	82	85	72	131	133	02	00	00	(115)	---	103	107	134	130	130
10	MC	"	18	14				82	86				02	03				83	72			
11	EC	"	24	17	26			76	83	74			00	½	00			53	147	285		
12	T	"	18	15	20	131	122	82	85	80	124	140	03	01	02	(110)	(120)	98	94	121	125	137
13	CS	"	21					79					02					63				
14	MT	Engr	16	14		140	102	84	86		139	112	02	00		(88)	---	267	122		139	111
15	MS	"	09	11		130	106	91	89		133	121	02	01		(151)	(130)	352	98		133	119
16	MC	"	13	11		132	144	87	89		129	129	04	02		(133)	(168)	167	171		129	130
17	ST	"	16	14				84	86				02	00				120	50			
18	MT	Agri	27	13		142	125	73	87		141	120	03	00		(158)	---	140	100		141	121
19	MW	Bus	24	17				76	83				½	03				232	58			
20	LS	"	25	15				75	85				½	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	24	23		141	123	76	77		145	120	03	01		(140)	(100)	70	99		144	121
22	A	"	13	12		144	131	87	88		135	121	02	02		(125)	(70)	135	97		136	122
23	S	"	25	22				75	78				03	02				32	40			
24	MT	Engr	20					80					02					118				
25	MT	Agri	15					85					02					53				

*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 40(d)*

Item 40. Below are listed some sources of worry and anxiety which seem to be bothering a good many students at the present time. For each problem check the appropriate category to show how much you have been bothered by the problem during this term.

(d) Nervousness

A. Bothered some, or bothered very much (1, 2)
B. Little or not at all (3, No Response)

Group	Univ.	Division	Students Making Response A: Per Cent MV	MN	FN	Mean AAG MV	MN	Students Making Response B: Per Cent MV	MN	FN	Mean AAG MV	MN	Students Making No Response: Per Cent MV	MN	FN	Mean AAG MV	MN	All Questionnaire Respondents: Number MV	MN	FN	Mean AAG MV	MN
			GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																			
1	CS	Arts	50	51	56	133	119	50	49	44	135	119	01	½	½	(123)	(120)	466	166	272	134	119
2	E	"	57	50	62	131	118	43	50	38	135	125	01	02	½	(115)	(130)	283	94	159	132	122
3	WS	"	47	36	54	137	128	53	64	46	133	127	½	01	02	(180)	(110)	272	148	374	135	128
4	M	"	38	36	53	131	121	62	64	47	131	128	½	01	½	(95)	(160)	425	193	216	131	125
5	S	"	29	30		133	128	71	70		133	129	03	02		(128)	(140)	150	323		133	128
6	H	"	45	46	49	126	124	55	54	51	137	133	00	01	01	---	(113)	105	146	213	132	129
7	A	"	37	31		133	129	63	69		132	129	03	½		140	(150)	465	612		132	129
8	D	"	36	35	50	121	122	64	65	50	137	134	00	00	00	---	---	77	119	93	132	130
9	LS	"	41	36	56	134	128	59	64	44	127	131	01	03	00	(70)	(130)	103	107	134	130	130
10	MC	"	39	40				61	60				02	01				83	72			
11	EC	"	55	30	50			45	70	50			00	½	½			53	147	285		
12	T	"	41	36	54	117	125	59	64	46	131	144	03	02	00	(110)	(140)	98	94	121	125	137
13	CS	"	52					48					00					63				
14	MT	Engr	48	41		135	106	52	59		142	115	02	00		(94)	---	267	122		139	111
15	MS	"	25	21		132	125	75	79		133	118	01	01		(156)	(130)	352	98		133	119
16	MC	"	38	37		131	123	62	63		128	135	04	02		(135)	(155)	167	171		129	130
17	ST	"	41	34				59	66				01	00				120	50			
18	MT	Agri	41	43		132	122	59	57		147	120	03	01		(148)	(170)	140	100		141	121
19	MW	Bus	48	31				52	69				01	02				232	58			
20	LS	"	55	45				45	55				½	00				142	65			
			GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																			
21	EC	Arts	36	46		140	122	64	54		146	120	01	02		(120)	(125)	70	99		144	121
22	A	"	42	44		140	133	58	56		134	114	02	02		(125)	(70)	135	97		136	122
23	S	"	47	38				53	62				00	00				32	40			
24	MT	Engr	48					52					02					118				
25	MT	Agri	40					60					02					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

freshmen when the questionnaire was adminis-

Table 40(e)*

Item 40. Below are listed some sources of worry and anxiety which seem to be bothering a good many students at the present time. For each problem check the appropriate category to show how much you have been bothered by the problem during this term.

(e) Health problems (e.g., eyes, sinus trouble)

A. Bothered some, or bothered very much (1, 2)
B. Little or not at all (3, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	26	36	36	133	119	74	64	64	134	119	02	00	01	(129)	---	466	166	272	134	119
2	E	"	32	32	37	129	123	68	68	63	134	121	02	05	02	(102)	(116)	283	94	159	132	122
3	WS	"	29	28	32	141	135	71	72	68	133	125	½	01	02	(180)	(115)	272	148	374	135	128
4	M	"	27	25	31	134	130	73	75	69	130	124	01	01	½	(125)	(160)	425	193	216	131	125
5	S	"	23	26		139	132	77	74		131	127	02	03		(143)	(132)	150	323		133	128
6	H	"	25	31	32	118	130	75	69	68	137	128	00	½	½	---	(108)	105	146	213	132	129
7	A	"	25	25		129	135	75	75		133	127	03	½		134	(140)	465	612		132	129
8	D	"	25	31	30	128	121	75	69	70	133	134	01	00	00	(90)	---	77	119	93	132	130
9	LS	"	28	25	33	126	126	72	75	67	131	131	01	00	00	(70)	---	103	107	134	130	130
10	MC	"	26	19				74	81				02	03				83	72			
11	EC	"	34	24	23			66	76	77			00	½	½			53	147	285		
12	T	"	30	27	30	126	128	70	73	70	125	141	03	00	01	(110)	---	98	94	121	125	137
13	CS	"	29					71					02					63				
14	MT	Engr	32	29		135	109	68	71		140	112	½	00		(105)	---	267	122		139	111
15	MS	"	22	20		130	120	78	80		134	119	02	02		(158)	(135)	352	98		133	119
16	MC	"	25	23		125	119	75	77		131	134	02	02		(120)	(165)	167	171		129	130
17	ST	"	23	24				77	76				01	02				120	50			
18	MT	Agri	25	30		130	126	75	70		145	119	02	00		(147)	---	140	100		141	121
19	MW	Bus	32	26				68	74				00	00				232	58			
20	LS	"	32	31				68	69				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	30	31		148	121	70	69		142	121	03	02		(140)	(125)	70	99		144	121
22	A	"	23	29		148	125	77	71		133	121	02	01		(125)	(40)	135	97		136	122
23	S	"	31	38				69	62				00	02				32	40			
24	MT	Engr	30					70					01					118				
25	MT	Agri	32					68					02					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 40(f)*

Item 40. Below are listed some sources of worry and anxiety which seem to be bothering a good many students at the present time. For each problem check the appropriate category to show how much you have been bothered by the problem during this term.

(f) Getting accustomed to college study

A. Bothered very much (1)
B. Bothered some (2)
C. Little or not at all (3, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	18	17	19	124	96	51	57	54	129	117	31	26	27	148	139	01	00	00	(150)	---	466	166	272	134	119
2	E	"	16	15	16	116	108	57	52	44	131	108	27	33	40	144	150	01	04	02	(130)	(122)	283	94	159	132	122
3	WS	"	17	16	18	110	109	49	46	53	131	118	34	38	29	154	148	½	00	01	(180)	---	272	148	374	135	128
4	M	"	14	12	12	113	110	52	47	43	126	120	34	40	45	145	137	½	01	½	(165)	(160)	425	193	216	131	125
5	S	"	11	10		116	114	39	34		128	122	49	56		140	134	½	02		(160)	(125)	150	323		133	128
6	H	"	19	17	17	106	113	44	51	43	132	124	37	32	40	146	144	01	00	01	(148)	---	105	146	213	132	129
7	A	"	07	10		98	105	39	37		123	124	54	53		143	137	03	½		142	(153)	465	612		132	129
8	D	"	26	20	26	114	112	43	44	31	135	120	31	35	43	141	152	00	00	01	---	---	77	119	93	132	130
9	LS	"	16	08	19	112	(101)	41	49	48	121	122	43	44	32	144	144	01	00	00	(70)	---	103	107	134	130	130
10	MC	"	19	18				39	43				42	39				02	03				83	72			
11	EC	"	19	13	06			47	40	35			34	47	60			00	00	01			53	147	285		
12	T	"	12	10	16	97	(107)	47	33	41	123	125	41	57	43	136	149	02	00	02	(105)	---	98	94	121	125	137
13	CS	"	06					46					48					02					63				
14	MT	Engr	12	13		113	97	40	48		131	103	48	38		151	126	½	00		(95)	---	267	122		139	111
15	MS	"	10	10		100	99	46	43		126	111	45	47		147	132	01	01		(180)	(130)	352	98		133	119
16	MC	"	10	13		95	84	48	41		120	132	42	46		149	142	02	02		(142)	(165)	167	171		129	130
17	ST	"	07	08				38	46				55	46				01	00				120	50			
18	MT	Agri	12	12		128	108	52	48		130	119	36	40		161	127	01	00		(155)	---	140	100		141	121
19	MW	Bus	13	21				50	41				37	38				00	02				232	58			
20	LS	"	16	12				45	48				39	40				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	10	02		(157)	(95)	36	24		135	112	54	74		147	125	03	03		(140)	(133)	70	99		144	121
22	A	"	07	05		(89)	(120)	30	27		136	109	63	68		142	127	02	02		(125)	(70)	135	97		136	122
23	S	"	00	12				41	28				59	60				06	00				32	40			
24	MT	Engr	02					20					78					02					118				
25	MT	Agri	04					19					77					02					53				

ization of this table and the symbols employed is given on page A1.

...ch you have been bothered by the problem during this term.

(g) Being unable to concentrate

A. Bothered very much (1)
B. Bothered some (2, No Response)
C. Little or not at all (3)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	28	20	28	125	120	54	61	56	136	118	18	19	16	143	122	½	½	00	(157)	(120)	466	166	272	134	119
2	E	"	23	16	24	119	109	58	65	57	133	119	19	19	20	146	141	02	02	01	(100)	(125)	283	94	159	132	122
3	WS	"	27	19	25	118	122	55	62	49	139	124	18	20	26	149	143	01	00	01	(167)	---	272	148	374	135	128
4	M	"	23	18	20	119	129	51	50	53	132	120	26	33	27	140	131	01	02	01	(128)	(130)	425	193	216	131	125
5	S	"	28	15		118	107	42	50		137	130	30	35		140	134	½	02		(160)	(150)	150	323		133	128
6	H	"	27	23	23	115	112	45	49	55	135	129	29	29	22	144	140	00	00	½	---	---	105	146	213	132	129
7	A	"	19	15		110	106	51	48		133	125	30	37		145	144	02	½		144	(142)	465	612		132	129
8	D	"	29	25	28	128	117	53	52	44	131	128	18	23	28	139	149	00	00	00	---	---	77	119	93	132	130
9	LS	"	26	13	26	111	123	50	56	47	129	127	23	31	27	153	138	01	00	00	(70)	---	103	107	134	130	130
10	MC	"	30	24				47	47				23	29				02	01				83	72			
11	EC	"	40	20	24			38	46	50			23	33	27			02	00	01			53	147	285		
12	T	"	28	13	22	107	105	42	46	50	127	140	31	42	28	140	145	02	00	01	(105)	---	98	94	121	125	137
13	CS	"	22					62					16					00					63				
14	MT	Engr	23	20		122	98	49	53		139	109	28	26		152	125	½	00		(95)	---	267	122		139	111
15	MS	"	19	15		111	104	50	50		133	122	31	35		147	123	01	01		(162)	(130)	352	98		133	119
16	MC	"	11	15		111	99	62	54		127	131	27	30		143	145	02	02		(123)	(165)	167	171		129	130
17	ST	"	17	20				59	46				24	34				02	02				120	50			
18	MT	Agri	24	19		132	115	60	64		140	120	16	17		156	131	½	00		(200)	---	140	100		141	121
19	MW	Bus	21	31				55	55				24	14				00	02				232	58			
20	LS	"	28	34				54	49				19	17				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	23	18		132	114	46	52		139	120	31	30		159	127	01	01		(120)	(100)	70	99		144	121
22	A	"	25	13		125	122	46	50		135	111	29	36		149	137	01	02		(180)	(70)	135	97		136	122
23	S	"	12	08				66	62				22	30				03	00				32	40			
24	MT	Engr	14					54					31					02					118				
25	MT	Agri	15					47					38					02					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 40(h)*

Item 40. Below are listed some sources of worry and anxiety which seem to be bothering a good many students at the present time. For each problem check the appropriate category to show how much you have been bothered by the problem during this term.

(h) Getting to know people socially

A. Bothered some, or bothered very much (1, 2)

B. Little or not at all (3, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
			GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																			
1	CS	Arts	26	42	28	142	126	74	58	72	131	114	02	½	02	135	(110)	466	166	272	134	119
2	E	"	29	39	29	143	127	71	61	71	128	118	02	04	02	(107)	(120)	283	94	159	132	122
3	WS	"	21	38	22	144	138	79	62	78	133	122	02	½	02	(165)	(150)	272	148	374	135	128
4	M	"	19	30	22	136	139	81	70	78	130	120	01	½	00	(118)	(130)	425	193	216	131	125
5	S	"	25	33		143	136	75	67		129	125	03	02		(128)	(127)	150	323		133	128
6	H	"	20	42	32	133	138	80	58	68	132	122	00	01	01	---	(103)	105	146	213	132	129
7	A	"	23	31		135	136	77	69		131	126	03	01		133	(164)	465	612		132	129
8	D	"	14	30	23	155	128	86	70	77	128	130	01	00	00	(90)	---	77	119	93	132	130
9	LS	"	26	36	30	138	138	74	64	70	127	125	01	01	00	(70)	(170)	103	107	134	130	130
10	MC	"	13	26				87	74				02	03				83	72			
11	EC	"	28	23	32			72	77	68			00	½	01			53	147	285		
12	T	"	24	35	42	134	141	76	65	58	122	135	04	00	02	(112)	---	98	94	121	125	137
13	CS	"	30					70					00					63				
14	MT	Engr	28	35		147	114	72	65		136	109	01	00		(83)	---	267	122		139	111
15	MS	"	28	21		141	125	72	79		130	118	02	01		(140)	(130)	352	98		133	119
16	MC	"	20	31		130	138	80	69		129	127	02	04		(150)	(166)	167	171		129	130
17	ST	"	23	26				77	74				01	00				120	50			
18	MT	Agri	31	36		149	128	69	64		138	117	01	01		(120)	(180)	140	100		141	121
19	MW	Bus	25	29				75	71				01	02				232	58			
20	LS	"	23	31				77	69				00	00				142	65			
			GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																			
21	EC	Arts	26	35		141	132	74	65		145	115	03	03		(140)	(143)	70	99		144	121
22	A	"	36	44		152	126	64	56		128	119	00	02		---	(70)	135	97		136	122
23	S	"	31	28				69	72				03	00				32	40			
24	MT	Engr	20					80					03					118				
25	MT	Agri	19					81					02					53				

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[*] A brief explanation of the organization of this table and the symbols employed is given on page A1.

when the questionnaire was adminis-

Table 40(i)

Item 40. Below are listed some sources of worry and anxiety which seem to be bothering a good many students at the present time. For each problem check the appropriate category to show how much you have been bothered by the problem during this term.

(i) Strained personal relations with close relatives or friends

A. Bothered some, or bothered very much (1, 2)
B. Little or not at all (3, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	15	20	22	138	117	85	80	78	133	119	02	½	01	(137)	(120)	466	166	272	134	119
2	E	"	16	14	23	127	116	84	86	77	133	123	02	06	02	(107)	(112)	283	94	159	132	122
3	WS	"	20	22	22	135	124	80	78	78	135	129	½	½	02	(180)	(70)	272	148	374	135	128
4	M	"	20	19	23	135	137	80	81	77	130	122	01	01	01	(123)	(160)	425	193	216	131	125
5	S	"	16	13		124	129	84	87		134	128	02	02		(127)	(140)	150	323		133	128
6	H	"	07	12	16	(102)	124	93	88	84	134	129	01	½	01	(148)	(108)	105	146	213	132	129
7	A	"	16	14		133	122	84	86		132	130	03	01		136	(127)	465	612		132	129
8	D	"	14	10	16	125	104	86	90	84	133	133	01	00	00	(90)	---	77	119	93	132	130
9	LS	"	16	18	19	125	131	84	82	81	131	130	05	00	½	(128)	---	103	107	134	130	130
10	MC	"	19	26				81	74				02	03				83	72			
11	EC	"	40	26	22			60	74	78			02	½	01			53	147	285		
12	T	"	15	24	36	141	134	85	76	64	122	138	03	00	02	(110)	---	98	94	121	125	137
13	CS	"	08					92					03					63				
14	MT	Engr	11	10		133	111	89	90		139	111	02	01		(106)	(160)	267	122		139	111
15	MS	"	16	16		127	117	84	84		134	120	02	01		(148)	(130)	352	98		133	119
16	MC	"	17	11		132	141	83	89		129	129	04	02		(133)	(165)	167	171		129	130
17	ST	"	12	08				88	92				01	04				120	50			
18	MT	Agri	16	13		132	125	84	87		143	120	01	00		(165)	---	140	100		141	121
19	MW	Bus	19	26				81	74				½	02				232	58			
20	LS	"	19	20				81	80				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	31	26		148	124	69	74		142	120	02	02		(140)	(125)	70	99		144	121
22	A	"	24	26		139	128	76	74		136	120	00	02		---	(70)	135	97		136	122
23	S	"	09	35				91	65				03	00				32	40			
24	MT	Engr	12					88					02					118				
25	MT	Agri	15					85					02					53				

*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 40(j)*

Item 40. Below are listed some sources of worry and anxiety which seem to be bothering a good many students at the present time. For each problem check the appropriate category to show how much you have been bothered by the problem during this term.

(j) Feelings of inferiority, inability to compete with others or to live up to your own standards

A. Bothered some, or bothered very much (1, 2)
B. Little or not at all (3, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	37	51	50	133	124	63	49	50	135	113	02	½	½	(141)	(120)	466	166	272	134	119
2	E	"	29	39	40	124	121	71	61	60	136	122	02	02	02	(104)	(105)	283	94	159	132	122
3	WS	"	38	45	47	134	133	62	55	53	136	123	½	½	02	(180)	(150)	272	148	374	135	128
4	M	"	33	35	43	127	125	67	65	57	133	125	01	½	½	(110)	(130)	425	193	216	131	125
5	S	"	31	37		133	130	69	63		133	127	02	02		(127)	(136)	150	323		133	128
6	H	"	30	47	44	113	130	70	53	56	140	127	01	00	01	(168)	---	105	146	213	132	129
7	A	"	31	43		130	127	69	57		133	131	03	½		136	(150)	465	612		132	129
8	D	"	29	40	31	132	123	71	60	69	131	134	01	00	00	(90)	---	77	119	93	132	130
9	LS	"	32	36	42	128	126	68	64	58	130	132	01	01	00	(70)	(110)	103	107	134	130	130
10	MC	"	22	38				78	62				02	01				83	72			
11	EC	"	36	41	49			64	59	51			00	½	½			53	147	285		
12	T	"	40	42	62	123	132	60	58	38	127	141	02	00	02	(105)	---	98	94	121	125	137
13	CS	"	30					70					02					63				
14	MT	Engr	34	47		142	107	66	53		137	115	02	00		(104)	---	267	122		139	111
15	MS	"	29	32		131	117	71	68		134	120	01	01		(146)	(130)	352	98		133	119
16	MC	"	29	32		128	127	71	68		130	132	03	02		(136)	(162)	167	171		129	130
17	ST	"	20	34				80	66				01	02				120	50			
18	MT	Agri	34	38		134	127	66	62		145	117	02	00		(147)	---	140	100		141	121
19	MW	Bus	33	33				67	67				½	02				232	58			
20	LS	"	41	35				59	65				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	43	40		139	116	57	60		147	125	01	02		(120)	(125)	70	99		144	121
22	A	"	45	47		141	132	55	53		132	113	½	02		(180)	(70)	135	97		136	122
23	S	"	53	42				47	58				00	00				32	40			
24	MT	Engr	39					61					02					118				
25	MT	Agri	40					60					02					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

each problem check the appropriate category to show how much you have been bothered by the problem during this term.

(k) Trying to decide what course of study to follow

A. Bothered very much (1)
B. Bothered some (2)
C. Little or not at all (3, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	16	17	21	128	121	34	39	43	134	108	49	45	36	136	128	01	½	½	(162)	(120)	466	166	272	134	119
2	E	"	16	16	20	123	112	33	30	36	126	111	52	54	44	139	131	02	03	02	(107)	(130)	283	94	159	132	122
3	WS	"	15	18	18	124	113	30	33	30	135	128	56	49	51	138	133	½	01	02	(180)	(145)	272	148	374	135	128
4	M	"	08	12	18	121	125	31	36	33	130	125	60	52	49	133	126	01	½	½	(110)	(190)	425	193	216	131	125
5	S	"	15	13		120	127	41	39		131	127	44	48		138	129	01	02		(140)	(134)	150	323		133	128
6	H	"	08	17	10	(142)	129	41	38	50	122	124	51	44	40	139	132	00	00	½	---	---	105	146	213	132	129
7	A	"	12	18		126	123	40	39		131	129	49	43		134	131	02	01		138	(124)	465	612		132	129
8	D	"	16	16	13	118	124	29	30	41	135	131	56	54	46	133	131	01	01	00	(90)	(190)	77	119	93	132	130
9	LS	"	15	22	26	105	111	34	34	40	129	138	52	45	34	137	132	01	00	½	(70)	---	103	107	134	130	130
10	MC	"	17	17				25	31				58	53				02	03				83	72			
11	EC	"	23	27	26			40	37	42			38	35	32			00	½	01			53	147	285		
12	T	"	11	13	23	128	119	31	40	37	131	138	58	47	40	121	142	02	01	01	(105)	(170)	98	94	121	125	137
13	CS	"	16					33					51					02					63				
14	MT	Engr	10	19		131	104	32	39		137	110	58	42		141	115	02	00		(108)	---	267	122		139	111
15	MS	"	06	09		120	(113)	29	32		130	114	65	59		135	123	02	01		(144)	(130)	352	98		133	119
16	MC	"	04	10		(117)	104	17	18		135	121	79	71		129	137	04	02		(142)	(165)	167	171		129	130
17	ST	"	06	04				21	36				73	60				01	02				120	50			
18	MT	Agri	06	06		(156)	(122)	31	39		131	124	63	55		145	119	01	00		(155)	---	140	100		141	121
19	MW	Bus	07	10				35	52				57	38				01	00				232	58			
20	LS	"	13	12				37	31				51	57				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	17	16		146	108	26	43		138	129	57	40		146	118	03	02		(140)	(125)	70	99		144	121
22	A	"	16	14		145	112	34	37		137	129	50	48		133	120	½	02		(180)	(115)	135	97		136	122
23	S	"	06	10				19	30				75	60				03	00				32	40			
24	MT	Engr	04					20					76					02					118				
25	MT	Agri	04					23					74					02					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 40(1)*

Item 40. Below are listed some sources of worry and anxiety which seem to be bothering a good many students at the present time. For each problem check the appropriate category to show how much you have been bothered by the problem during this term.

(1) Trying to make up a deficiency in preparation for some course

A. Bothered some, or bothered very much (1, 2)
B. Little or not at all (3, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
			GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																			
1	CS	Arts	41	39	43	125	114	59	61	57	140	122	02	01	½	(146)	(150)	466	166	272	134	119
2	E	"	35	44	29	123	109	65	56	71	138	132	02	03	01	(108)	(120)	283	94	159	132	122
3	WS	"	30	21	12	127	128	70	79	88	138	128	½	½	02	(180)	(70)	272	148	374	135	128
4	M	"	33	31	32	119	117	67	69	68	137	129	½	01	01	(133)	(160)	425	193	216	131	125
5	S	"	25	24		107	109	75	76		142	135	½	02		(160)	(120)	150	323		133	128
6	H	"	44	38	35	117	122	56	62	65	144	132	01	½	01	(148)	(108)	105	146	213	132	129
7	A	"	26	31		118	115	74	69		137	136	03	02		141	118	465	612		132	129
8	D	"	40	27	32	122	107	60	73	68	138	138	03	01	01	(70)	(110)	77	119	93	132	130
9	LS	"	45	32	34	129	110	55	68	66	130	139	02	00	00	(115)	---	103	107	134	130	130
10	MC	"	43	31				57	69				02	04				83	72			
11	EC	"	43	38	28			57	62	72			00	01	01			53	147	285		
12	T	"	20	17	28	110	123	80	83	72	129	140	01	00	01	(100)	---	98	94	121	125	137
13	CS	"	36					64					03					63				
14	MT	Engr	30	40		121	97	70	60		146	120	02	00		(112)	---	267	122		139	111
15	MS	"	27	28		117	106	73	72		139	124	02	01		(148)	(130)	352	98		133	119
16	MC	"	25	28		112	118	75	72		135	135	02	03		(110)	(166)	167	171		129	130
17	ST	"	25	28				75	72				02	02				120	50			
18	MT	Agri	39	47		129	117	61	53		149	124	02	00		(147)	---	140	100		141	121
19	MW	Bus	33	26				67	74				01	02				232	58			
20	LS	"	41	43				59	57				00	00				142	65			
			GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																			
21	EC	Arts	27	41		129	102	73	59		149	134	03	02		(140)	(125)	70	99		144	121
22	A	"	30	26		129	118	70	74		140	124	½	02		(180)	(70)	135	97		136	122
23	S	"	09	42				91	58				03	00				32	40			
24	MT	Engr	30					70					02					118				
25	MT	Agri	28					72					00					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

** (except 12, 13, and 17) were freshmen when the questionnaire was adminis-

Table 40(m)

Item 40. Below are listed some sources of worry and anxiety which seem to be bothering a good many students at the present time. For each problem check the appropriate category to show how much you have been bothered by the problem during this term.

(m) Relations with members of the opposite sex

A. Bothered some, or bothered very much (1, 2)
B. Little or not at all (3, No Response)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																						
1	CS	Arts	27	34	32	135	121	73	66	68	134	118	02	½	02	(146)	(70)	466	166	272	134	119
2	E	"	23	19	29	136	114	77	81	71	131	124	02	03	02	(105)	(130)	283	94	159	132	122
3	WS	"	29	40	28	133	133	71	60	72	136	124	01	½	02	(160)	(150)	272	148	374	135	128
4	M	"	24	34	26	129	136	76	66	74	131	120	01	½	½	(112)	(190)	425	193	216	131	125
5	S	"	35	29		136	131	65	71		131	127	01	02		(140)	(145)	150	323		133	128
6	H	"	19	34	35	132	132	81	66	65	132	127	00	½	01	---	(108)	105	146	213	132	129
7	A	"	35	37		129	129	65	63		133	129	03	½		141	(140)	465	612		132	129
8	D	"	21	29	39	132	125	79	71	61	131	132	03	00	00	(70)	---	77	119	93	132	130
9	LS	"	29	32	40	130	132	71	68	60	129	129	01	00	00	(70)	---	103	107	134	130	130
10	MC	"	16	21				84	79				02	04				83	72			
11	EC	"	34	31	34			66	69	66			00	01	½			53	147	285		
12	T	"	35	34	42	126	142	65	66	58	125	135	04	00	02	(102)	---	98	94	121	125	137
13	CS	"	19					81					00					63				
14	MT	Engr	25	29		140	106	75	71		138	113	02	00		(112)	---	267	122		139	111
15	MS	"	28	22		135	128	72	78		132	117	02	01		(148)	(130)	352	98		133	119
16	MC	"	22	28		139	136	78	72		127	128	02	02		(140)	(165)	167	171		129	130
17	ST	"	22	26				78	74				01	02				120	50			
18	MT	Agri	31	45		138	129	69	55		142	114	01	00		(165)	---	140	100		141	121
19	MW	Bus	25	43				75	57				01	02				232	58			
20	LS	"	28	38				72	62				00	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																						
21	EC	Arts	40	33		138	133	60	67		148	115	03	01		(140)	(100)	70	99		144	121
22	A	"	42	44		140	134	58	56		134	113	00	02		---	(70)	135	97		136	122
23	S	"	38	50				62	50				03	00				32	40			
24	MT	Engr	18					82					02					118				
25	MT	Agri	24					76					02					53				

*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 41 (Part 1)*

Item 41. Are there any problems not mentioned in the previous question which have been bothering you in the past six months? What general sort of problem?

A. Concern over present or future economic, social or political situations
B. Indecision regarding type of future work
C. Fear of academic failure
D. Indecision about continuing college study
E. Homesickness
(Categories F, G, and H on following page)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making Response D					Students Making Response E				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	02	01	02	(144)	(145)	02	03	01	(138)	(100)	02	08	03	141	125	01	½	02	(128)	(100)	00	½	00	---	(120)
2	E	"	½	02	02	(175)	(100)	02	01	01	(126)	(80)	½	02	04	(120)	(140)	00	00	00	---	---	00	00	00	---	---
3	WS	"	03	03	01	(151)	(122)	½	03	00	(105)	(145)	04	05	06	121	(108)	½	00	01	(160)	---	00	00	00	---	---
4	M	"	01	01	01	(170)	(140)	01	03	02	(145)	(172)	02	04	02	(131)	(144)	02	02	½	(120)	(90)	00	00	00	---	---
5	S	"	½	03		(130)	133	04	02		(143)	(138)	08	03		125	132	02	½		(93)	(130)	00	¼		---	(120)
6	H	"	02	03	½	(113)	(136)	00	00	½	---	---	04	02	01	(93)	(105)	00	02	01	---	(141)	00	00	½	---	---
7	A	"	02	02		(111)	(138)	01	01		(130)	(112)	02	03		(140)	101	01	00		(110)	---	00	¼		---	(210)
8	D	"	03	01	00	(205)	(150)	00	01	01	---	(180)	04	07	10	(123)	(110)	00	00	00	---	---	00	00	01	---	---
9	LS	"	01	00	00	(100)	---	00	01	02	---	(170)	06	01	04	(120)	(110)	00	02	03	---	(130)	00	00	00	---	---
10	MC	"	02	01				04	03				01	01				00	00				00	00			
11	EC	"	04	04	03			06	05	01			00	04	02			02	03	02			00	00	00		
12	T	"	05	05	03	(132)	(154)	03	02	04	(113)	(110)	02	00	03	(135)	---	00	01	03	---	(210)	00	01	00	---	(130)
13	CS	"	03					03					02					00					00				
14	MT	Engr	03	02		(132)	(90)	½	02		(135)	(120)	03	05		(121)	(117)	½	02		(130)	(100)	½	00		(10)	---
15	MS	"	02	02		(128)	(105)	00	00		---	---	01	02		(104)	(85)	¼	00		(110)	---	00	00		---	---
16	MC	"	00	00		---	---	00	00		---	---	03	01		(118)	(125)	00	01		---	(145)	00	½		---	(50)
17	ST	"	00	00				02	00				00	04				02	00				00	00			
18	MT	Agri	½	03		(160)	(137)	½	00		(90)	---	04	02		(100)	(95)	½	02		(140)	(150)	00	02		---	(100)
19	MW	Bus	01	03				½	02				02	07				½	00				00	00			
20	LS	"	04	00				01	02				01	09				00	00				00	00			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	03	02		(150)	(160)	07	04		(170)	(115)	00	05		---	(98)	01	01		(160)	(60)	00	00		---	---
22	A	"	04	02		(140)	(140)	04	03		(173)	(140)	½	04		(70)	(68)	02	02		(145)	(115)	00	00		---	---
23	S	"	03	00				03	00				03	10				03	00				00	00			
24	MT	Engr	12					02					02					00					00				
25	MT	Agri	08					04					04					00					00				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

questionnaire was administered.

Item 41. Are there any problems not mentioned in the previous question which have been bothering you in the past six months? What general sort of problem?

(Categories A, B, C, D and E on preceding page)

F. Religious or moral conflicts
G. Parental family conflicts indirectly involving the respondent
H. Insufficient time or faulty division of time

Group	Univ.	Division	Students Making Response F					Students Making Response G					Students Making Response H					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
								GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																			
1	CS	Arts	01	01	02	(150)	(140)	½	½	01	(110)	(60)	00	02	½	---	(130)	92	83	90	134	119	466	166	272	134	119
2	E	"	½	01	00	(190)	(90)	00	00	½	---	---	½	03	½	(135)	(117)	96	90	92	132	123	283	94	159	132	122
3	WS	"	½	01	01	(135)	(135)	01	½	00	(113)	(180)	02	03	04	(160)	(120)	89	84	87	135	128	272	148	374	135	128
4	M	"	00	½	½	---	(140)	¼	00	01	(130)	---	01	04	01	(150)	(120)	92	86	92	130	124	425	193	216	131	125
5	S	"	01	02		(85)	(149)	01	01		(125)	(150)	½	03		(140)	149	82	83		135	126	150	323		133	128
6	H	"	01	04	03	(128)	(146)	00	½	00	---	(158)	01	02	½	(188)	(128)	92	86	93	134	128	105	146	213	132	129
7	A	"	02	04		(161)	140	½	½		(100)	(115)	01	04		(135)	137	90	86		132	129	465	612		132	129
8	D	"	00	00	03	---	---	00	01	00	---	(170)	00	03	02	---	(105)	94	87	83	130	131	77	119	93	132	130
9	LS	"	01	03	02	(120)	(120)	00	00	02	---	---	00	01	02	---	(120)	92	92	85	131	130	103	107	134	130	130
10	MC	"	01	00				00	00				01	00				90	94				83	72			
11	EC	"	02	01	01			00	½	½			04	06	05			83	75	85			53	147	285		
12	T	"	05	01	02	(162)	(160)	01	02	01	(110)	(180)	02	01	04	(110)	(70)	82	86	78	123	136	98	94	121	125	137
13	CS	"	00					00					02					90					63				
14	MT	Engr	½	00		(140)	---	01	00		(157)	---	02	02		(154)	(110)	88	88		139	111	267	122		139	111
15	MS	"	00	00		---	---	½	00		(170)	---	01	05		(134)	(100)	95	91		133	122	352	98		133	119
16	MC	"	½	½		(130)	(190)	00	00		---	---	02	00		(147)	---	95	96		129	130	167	171		129	130
17	ST	"	00	00				01	00				01	02				95	94				120	50			
18	MT	Agri	½	01		(80)	(130)	00	00		---	---	½	01		(210)	(130)	93	89		143	121	140	100		141	121
19	MW	Bus	½	00				00	00				01	00				95	88				232	58			
20	LS	"	00	02				01	02				00	02				92	85				142	65			
								GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																			
21	EC	Arts	01	03		(120)	(123)	00	00		---	---	00	02		---	(170)	87	83		141	121	70	99		144	121
22	A	"	½	02		(80)	(125)	½	00		(100)	---	04	01		(130)	(140)	84	86		136	124	135	97		136	122
23	S	"	00	08				00	00				00	05				88	78				32	40			
24	MT	Engr	02					00					00					83					118				
25	MT	Agri	02					00					00					83					53				

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[*] A brief explanation of the organization of this table and the symbols employed is given on page A1.

[**] Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 42*

Item 42. How much would you say that any of the problems mentioned on the previous page--either the ones listed in Question 40 or any other--have interfered with your college work in the past six months?

A. Not at all (1)
B. A little, but not much (2, No Response)
C. A good deal (3)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																											
1	CS	Arts	14	08	12	145	133	64	69	65	136	121.	22	23	23	123	107	½	½	½	(165)	(150)	466	166	272	134	119
2	E	"	11	17	18	137	142	69	60	62	135	124	21	23	21	121	102	½	01	01	(100)	(100)	283	94	159	132	122
3	WS	"	11	13	16	140	138	56	63	60	139	131	34	24	24	127	114	02	½	01	(158)	(130)	272	148	374	135	128
4	M	"	12	14	18	134	129	62	66	60	135	128	26	20	22	119	113	¼	02	01	(130)	(153)	425	193	216	131	125
5	S	"	20	26		145	135	66	55		131	130	14	19		125	113	01	¼		(130)	(100)	150	323		133	128
6	H	"	15	14	21	155	144	64	63	64	137	131	21	23	16	103	112	00	½	01	---	(78)	105	146	213	132	129
7	A	"	25	27		143	137	58	57		135	131	16	16		103	109	01	01		(142)	(127)	465	612		132	129
8	D	"	10	14	22	(150)	150	62	61	60	137	129	27	24	18	113	121	00	00	00	---	---	77	119	93	132	130
9	LS	"	13	14	15	167	159	60	67	67	127	131	27	19	18	118	106	01	01	½	(70)	(90)	103	107	134	130	130
10	MC	"	17	22				57	56				26	22				02	00				83	72			
11	EC	"	13	20	18			45	53	57			42	26	25			04	00	01			53	147	285		
12	T	"	16	23	10	130	162	54	57	49	129	136	30	19	41	115	113	01	01	02	(90)	(160)	98	94	121	125	137
13	CS	"	02					76					22					02					63				
14	MT	Engr	17	13		152	136	62	62		142	112	20	25		117	96	02	01		(134)	(100)	267	122		139	111
15	MS	"	21	29		149	138	62	55		133	113	16	16		114	108	½	01		(180)	(130)	352	98		133	119
16	MC	"	19	26		151	144	63	60		130	133	18	14		105	95	½	02		(70)	(110)	167	171		129	130
17	ST	"	15	22				70	52				15	26				01	00				120	50			
18	MT	Agri	09	11		189	114	71	70		139	125	20	19		128	109	00	02		---	(115)	140	100		141	121
19	MW	Bus	11	14				69	64				19	22				01	00				232	58			
20	LS	"	16	15				62	58				22	26				½	00				142	165			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																											
21	EC	Arts	20	11		158	141	56	52		143	117	24	37		133	120	00	01		---	(100)	70	99		144	121
22	A	"	18	27		146	122	61	53		142	124	22	21		113	118	04	01		(172)	(110)	135	97		136	122
23	S	"	22	20				47	52				31	28				00	00				32	40			
24	MT	Engr	19					59					22					01					118				
25	MT	Agri	19					66					15					00					53				

*A brief explanation of the organization of this table and the symbols employed is given on page A1.

[illegible] questionnaire was administered.

Table 43*

Item 43. Approximately what was the annual income of the head of your family while you were in high school?

A. $6,000 or more (1, 2)
B. $4,000 up to $6,000 (3)
C. $2,000 up to $4,000 (4)
D. Under $2,000 (5)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making Response D					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																																
1	CS	A	16	26	28	134	123	21	27	26	132	122	41	35	28	131	113	18	05	05	139	(107)	04	06	13	149	134	466	166	272	134	119
2	E	"	13	19	23	131	106	17	35	25	124	123	49	39	31	133	125	17	03	06	146	(177)	04	03	14	109	(110)	283	94	159	132	122
3	WS	"	15	25	31	125	124	15	24	25	143	138	48	35	33	133	122	19	07	04	143	144	03	08	06	(139)	118	272	148	374	135	128
4	M	"	12	21	23	133	126	14	24	26	129	124	53	37	34	132	122	16	09	04	131	148	04	08	14	126	116	425	193	216	131	125
5	S	"	78	69		131	126	11	15		134	132	06	10		(140)	127	03	02		(142)	(166)	03	05		(148)	132	150	323		133	128
6	H	"	22	37	44	128	121	26	23	16	134	135	36	28	14	131	132	14	06	01	139	(145)	02	06	25	(128)	(118)	105	146	213	132	129
7	A	"	69	60		129	123	12	15		137	139	12	17		145	141	02	03		(173)	136	06	05		121	123	465	612		132	129
8	D	"	38	61	43	131	124	30	21	22	121	130	26	11	20	142	152	05	02	00	(138)	(130)	01	05	15	(140)	(148)	77	119	93	132	130
9	LS	"	16	30	25	138	130	25	31	28	127	123	44	35	24	128	139	10	02	03	(131)	(85)	05	03	19	(132)	(117)	103	107	134	130	130
10	MC	"	19	39				25	19				41	31				07	06				07	06				83	72			
11	EC	"	06	18	21			21	26	29			49	05	40			23	50	06			02	½	05			53	147	285		
12	T	"	10	21	22	123	131	09	27	23	(117)	124	49	40	37	121	149	30	10	12	136	(144)	02	02	06	(110)	(115)	98	94	121	125	137
13	CS	"	05					11					48					32					05					63				
14	MT	E	08	25		142	117	17	28		138	107	48	40		139	112	22	04		139	(100)	04	03		133	(98)	267	122		139	111
15	MS	"	08	22		133	108	12	29		126	130	52	43		135	123	26	04		133	(88)	01	02		(114)	(90)	352	98		133	119
16	MC	"	11	14		118	136	19	23		135	112	46	50		129	139	20	07		132	130	04	05		(122)	(111)	167	171		129	130
17	ST	"	09	22				18	26				48	46				24	02				01	04				120	50			
18	MT	Ag	15	29		123	122	14	31		136	135	49	33		145	109	18	03		147	(120)	04	04		(150)	(100)	140	100		141	121
19	MW	B	16	40				18	28				45	24				19	05				03	03				232	58			
20	LS	"	27	38				20	34				42	20				08	08				04	00				142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																																
21	EC	A	07	10		(154)	104	23	20		143	119	53	58		147	124	17	12		129	123	00	00		---	---	70	99		144	121
22	A	"	56	60		134	119	19	21		136	130	18	16		134	115	02	03		(177)	(157)	04	01		(164)	(160)	135	97		136	122
23	S	"	72	70				16	12				12	10				00	00				00	08				32	40			
24	MT	E	10					21					45					23					01					118				
25	MT	Ag	15					06					51					26					02					53				

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 44*

Item 44. How much formal education did your father have?

A. Not a high school graduate (1, 2)
B. Graduated from high school (3, 4)
C. Graduated from college (5, 6)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making No Response					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
			GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																								
1	CS	Arts	51	37	32	132	120	34	35	37	134	115	15	26	30	141	123	01	02	01	(126)	(120)	466	166	272	134	119
2	E	"	60	40	37	135	117	30	39	41	127	121	10	18	20	136	131	½	02	02	(140)	(155)	283	94	159	132	122
3	WS	"	48	39	35	138	131	34	38	37	135	124	17	22	26	126	126	01	01	01	(147)	(145)	272	148	374	135	128
4	M	"	65	55	50	132	127	21	23	32	131	121	12	20	17	126	127	02	02	02	(136)	(118)	425	193	216	131	125
5	S	"	08	11		138	123	31	24		131	132	60	64		133	128	01	¼		(140)	(100)	150	323		133	128
6	H	"	39	32	11	138	128	38	31	38	134	128	23	36	49	120	131	00	01	01	---	(143)	105	146	213	132	129
7	A	"	12	14		134	137	26	25		134	128	60	60		130	128	01	02		(157)	(132)	465	612		132	129
8	D	"	20	14	09	130	124	56	42	44	131	125	23	43	47	137	136	01	01	00	(90)	(160)	77	119	93	132	130
9	LS	"	43	35	28	123	135	34	37	37	135	123	21	27	33	138	132	02	01	02	(95)	(140)	103	107	134	130	130
10	MC	"	43	39				37	31				17	31				02	00				83	72			
11	EC	"	58	68	60			30	16	21			04	14	15			08	01	05			53	147	285		
12	T	"	52	35	40	124	152	29	31	28	127	123	18	33	29	128	135	01	01	02	(110)	(160)	98	94	121	125	137
13	CS	"	49					30					14					06					63				
14	MT	Engr	50	38		138	108	33	32		143	115	15	30		134	111	03	01		(123)	(100)	267	122		139	111
15	MS	"	62	49		131	118	27	34		139	118	10	16		127	127	½	01		(200)	(130)	352	98		133	119
16	MC	"	62	50		133	133	25	33		121	125	12	16		129	132	01	½		(140)	(90)	167	171		129	130
17	ST	"	52	48				34	28				12	24				02	00				120	50			
18	MT	Agri	49	45		144	116	37	39		138	131	13	16		139	112	01	00		(155)	---	140	100		141	121
19	MW	Bus	53	43				34	29				11	26				01	02				232	58			
20	LS	"	49	34				35	32				16	34				½	00				142	65			
			GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																								
21	EC	Arts	84	74		144	120	13	19		(144)	125	01	06		(130)	(120)	01	01		(130)	(140)	70	99		144	121
22	A	"	15	18		138	129	22	24		137	110	61	59		135	125	03	00		(150)	---	135	97		136	122
23	S	"	03	08				22	20				75	70				00	02				32	40			
24	MT	Engr	45					36					19					00					118				
25	MT	Agri	53					24					23					00					53				

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[*] A brief explanation of the organization of this table and the symbols employed is given on page A1.

[**] Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

Table 45-1*

Item 45-1. Briefly, what are the main changes you would like to see made in the program or organization of education at this college, in order to help you get what you are after in a college education?

A. No changes suggested
B. One change suggested
C. Two changes suggested
D. Three or more changes suggested

Group**	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making Response D					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
7	A	Arts	23	23		140	129	30	37		130	129	27	23		126	127	20	18		134	132	465	612		132	129
22	A	"	13	21		134	122	30	19		132	130	32	36		135	109	26	25		144	135	135	97		136	122
5	S	"	13	12		140	127	28	30		138	130	31	33		121	125	28	25		136	132	150	323		133	128
23	S	"	06	12				34	35				28	30				31	32				32	40			
14	MT	Engr	10	06		153	(110)	29	31		139	116	33	41		138	110	27	22		134	107	267	122		139	111
24	MT	"	02					20					43					35					118				
18	MT	Agri	05	05		(151)	(116)	33	31		137	130	34	33		147	112	29	31		136	122	140	100		141	121
25	MT	"	02					21					26					51					53				
6	H	Arts	15	14	15	127	131	49	41	38	135	130	26	29	32	130	122	10	16	14	130	134	105	146	213	132	129
9	LS	"	13	17	21	126	125	44	36	35	128	123	33	33	28	134	141	11	14	16	128	128	103	107	134	130	130
20	LS	Bus	13	14				39	28				30	35				18	23				142	65			
19	MW	"	16	10				34	28				33	28				17	34				232	58			
15	MS	Engr	13	11		152	119	38	40		131	115	30	29		129	122	19	20		130	124	352	98		133	119
8	D	Arts	09	14	04	(130)	129	47	29	30	126	130	30	43	41	141	128	14	13	25	133	134	77	119	93	132	130
3	WS	"	10	04	12	128	(112)	30	39	26	134	132	27	28	33	140	123	33	28	29	134	129	272	148	374	135	128
11	EC	"	08	10	06			32	26	27			32	33	36			28	31	32			53	147	285		
21	EC	"	09	04		(127)	(135)	23	25		149	115	34	27		148	119	34	43		140	124	70	99		144	121
1	CS	"	16	14	11	133	115	36	42	38	131	123	30	29	29	138	118	18	14	22	133	115	466	166	272	134	119
13	CS	"	14					19					44					22					63				
4	M	"	13	11	09	138	124	29	28	24	126	120	28	31	35	134	133	29	30	32	130	123	425	193	216	131	125
2	E	"	24	18	19	128	128	41	36	40	133	122	25	19	29	131	118	10	27	12	147	121	283	94	159	132	122
12	T	"	29	29	26	121	138	38	30	31	123	138	18	32	29	129	135	15	10	13	134	(143)	98	94	121	125	137
10	MC	"	24	17				31	36				30	33				14	14				83	72			
16	MC	Engr	34	41		134	132	38	35		128	128	20	17		125	133	08	07		126	128	167	171		129	130
17	ST	"	13	12				37	20				26	28				24	40				120	50			

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*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**In this table the college groups have been arranged in the order in which the questionnaires were coded, but are numbered as in previous tables. Thus, in groups 1 through 20 the veterans entered college after war service, while in groups 21 through 25 the veterans started college before war service. All students in groups 1 through 20, except those in groups 12, 13, and 17, were freshmen when the questionnaire was administered.

Table 45-2 (Part 1)[*]

Item 45-2. Briefly, what are the main changes you would like to see made in the program or organization of education at this college, in order to help you get what you are after in a college education?

A. Better courses, instructors, or instruction
B. More courses, teachers, or classrooms
C. Fewer, or different, required courses
D. Changes in general academic requirements

Group**	University	Division	Students Making Response A				Students Making Response B				Students Making Response C				Students Making Response D				All Questionnaire Respondents			
			Frequency Per 100 Students		Mean AAG		Frequency Per 100 Students		Mean AAG		Frequency Per 100 Students		Mean AAG		Frequency Per 100 Students		Mean AAG		Number		Mean AAG	
			MV	MN	MV	MN	MV	MN	MV	MN	MV	MN	MV	MN	MV	MN	MV	MN	MV	MN	MV	MN
7	A	Arts	44	39	132	127	19	17	128	129	24	23	128	128	22	20	133	125	465	612	132	129
22	A	"	42	39	132	119	28	28	148	137	20	21	137	113	22	20	137	117	135	97	136	122
5	S	"	63	70	132	130	20	17	128	125	11	12	128	118	22	14	133	127	150	323	133	128
23	S	"	62	65			28	22			16	02			22	20			32	40		
14	MT	Engr	74	77	138	113	17	17	145	110	24	26	132	103	21	14	130	170	267	122	139	111
24	MT	"	103				24				18				23				118			
18	MT	Agri	75	83	144	123	16	17	148	119	25	29	132	117	22	24	134	112	140	100	141	121
25	MT	"	106				24				21				19				53			

E. Better integration of existing courses
F. Reduced difficulty of certain courses
G. Closer student-faculty relationship
H. Better guidance, counselling, or placement

Group**	University	Division	Students Making Response E				Students Making Response F				Students Making Response G				Students Making Response H				All Questionnaire Respondents			
			Frequency Per 100 Students		Mean AAG		Frequency Per 100 Students		Mean AAG		Frequency Per 100 Students		Mean AAG		Frequency Per 100 Students		Mean AAG		Number		Mean AAG	
			MV	MN	MV	MN	MV	MN	MV	MN	MV	MN	MV	MN	MV	MN	MV	MN	MV	MN	MV	MN
7	A	Arts	02	03	120	147	04	06	128	138	08	07	134	143	06	05	129	129	465	612	132	129
22	A	"	08	08	130	(131)	10	09	132	(111)	13	19	157	137	07	08	(147)	(104)	135	97	136	122
5	S	"	05	05	(129)	129	15	13	132	126	09	10	118	136	07	06	143	143	150	323	133	128
23	S	"	12	08			03	02			06	02			09	10			32	40		
14	MT	Engr	02	03	(130)	(102)	07	09	141	112	10	08	143	103	02	02	(113)	(120)	267	122	139	111
24	MT	"	01				06				02				04				118			
18	MT	Agri	03	05	(170)	(128)	08	08	124	(125)	07	07	141	(117)	08	02	162	(140)	140	100	141	121
25	MT	"	06				02				08				06				53			

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[*] A brief explanation of the organization of this table and the symbols employed is given on page A1.

[**] [illegible] colleges which were coded before the consolidation of categories

Table 45-2 (Part 2)*

Item 45-2. Briefly, what are the main changes you would like to see made in the program or organization of education at this college, in order to help you get what you are after in a college education?

A. Better courses, instructors, or instruction
B. More courses, teachers, or classrooms
C. Fewer, or different, required courses
D. Changes in general academic requirements
(Categories E, F, G, and H on following page)

Group**	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making Response D					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
6	H	Arts	26	29	20	132	130	14	16	15	147	129	44	44	40	131	123	14	21	21	139	135	105	146	213	132	129
9	LS	"	40	36	26	131	135	10	14	16	121	145	24	22	25	130	132	16	22	16	138	130	103	107	134	130	130
20	LS	Bus	32	45				16	20				30	37				28	25				142	65			
19	MW	"	36	45				31	36				34	47				17	10				232	58			
15	MS	Engr	46	44		133	112	20	17		130	119	26	30		129	130	09	09		124	(130)	352	98		133	119
8	D	Arts	35	41	36	142	131	14	14	29	120	132	40	36	48	129	121	10	15	22	(130)	137	77	119	93	132	130
3	WS	"	46	45	38	139	130	32	32	32	140	126	23	16	25	129	118	27	29	28	138	131	272	148	374	135	128
11	EC	"	43	48	53			23	21	22			53	48	46			13	25	24			53	147	285		
21	EC	"	43	48		149	126	21	14		137	112	40	44		136	118	21	36		157	116	70	99		144	121
1	CS	"	34	31	31	138	112	10	06	12	139	120	46	39	50	133	123	23	25	26	133	118	466	166	272	134	119
13	CS	"	41					21					40					17					63				
4	M	"	48	44	45	130	132	27	30	44	135	124	15	14	13	130	125	21	17	15	129	120	425	193	216	131	125
2	E	"	34	39	28	133	11̄8	13	08	20	140	(118)	20	27	28	129	136	15	23	10	137	119	283	94	159	132	122
12	T	"	34	31	30	132	138	16	03	05	131	(160)	09	10	12	(117)	(14̄2)	24	27	30	118	137	98	94	121	125	137
10	MC	"	32	46				12	17				19	15				16	11				83	72			
16	MC	Engr	33	33		124	131	18	12		132	122	04	½		(126)	(130)	11	06		136	135	167	171		129	130
17	ST	"	60	62				25	32				08	08				11	12				120	50			

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* A brief explanation of the organization of this table and the symbols employed is given on page A1.

** This table includes the results for the colleges coded after the response categories for this item were revised and simplified. The college groups have been arranged in the order in which the questionnaires were coded, but are numbered as in previous tables. Thus, in groups 1 through 20 the veterans entered college after war service, while in group 21 the veterans started college before war service. All students in the above tabulation, except those in groups 12, 13, 17, and 21, were freshmen when the questionnaire was administered.

Table 45-2 (Part 3)*

Item 45-2. Briefly, what are the main changes you would like to see made in the program or organization of education at this college, in order to help you get what you are after in a college education?

(Categories A, B, C, and D on preceding page)

E. Better integration of existing courses
F. Reduced difficulty of certain courses
G. Closer student-faculty relationship
H. Better guidance, counselling, or placement

Group**	Univ.	Division	Students Making Response E					Students Making Response F					Students Making Response G					Students Making Response H					All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN
6	H	Arts	01	02	01	(128)	(128)	04	05	08	(140)	(137)	04	02	04	(130)	(98)	02	04	04	(123)	(118)	105	146	213	132	129
9	LS	"	05	04	½	(138)	(122)	03	08	05	(133)	(139)	06	06	05	(150)	(115)	09	11	16	(139)	122	103	107	134	130	130
20	LS	Bus	02	00				03	02				08	08				08	03				142	65			
19	MW	"	02	03				03	05				13	12				03	03				232	58			
15	MS	Engr	05	02	//	131	(100)	10	09		123	(119)	10	10		122	108	05	06		146	(135)	352	98		133	119
8	D	Arts	01	05	01	(160)	(130)	09	08	12	(141)	(141)	12	08	13	(122)	(142)	05	06	03	(138)	(150)	77	119	93	132	130
3	WS	"	07	05	06	127	(126)	08	05	08	145	(109)	17	20	17	132	121	04	07	12	119	128	272	148	374	135	128
11	EC	"	11	10	10			11	08	09			02	05	07			09	07	06			53	147	285		
21	EC	"	14	18		143	129	06	07		(140)	(126)	09	09		(167)	(108)	07	12		(114)	122	70	99		144	121
1	CS	"	06	05	05	142	(118)	02	05	09	127	(132)	07	06	08	140	107	06	07	07	128	138	466	166	272	134	119
13	CS	"	14					03					10					05					63				
4	M	"	08	09	05	140	125	11	06	05	119	111	16	21	30	131	128	06	06	06	129	137	425	193	216	131	125
2	E	"	07	10	04	142	(119)	08	06	06	131	(142)	04	04	08	140	(68)	02	07	09	(129)	(133)	283	94	159	132	122
12	T	"	07	07	04	(137)	(167)	04	07	16	(100)	(126)	05	03	12	(132)	(107)	08	06	06	(130)	(123)	98	94	121	125	137
10	MC	"	06	11				08	03				10	11				06	06				83	72			
16	MC	Engr	04	02		(139)	(148)	08	15		122	126	08	09		105	139	01	02		(110)	(113)	167	171		129	130
17	ST	"	12	14				10	10				02	02				00	00				120	50			

---

*A brief explanation of the organization of this table and the symbols employed is given on page A1.

**This table includes the results for the colleges coded after the response categories for this item were revised and simplified. The college groups have been arranged in the order in which the questionnaires were coded, but are numbered as in previous tables. Thus, in groups 1 through 20 the veterans entered college after war service, while in group 21 the veterans started college before war service. All students in the above tabulation, except those in groups 12, 13, 17, and 21, were freshmen when the questionnaire was administered.

Table 46*

Item 46. How did you feel about answering the questions contained in this questionnaire?

A. Felt I could answer all frankly (1)
B. Hesitant to answer all frankly (2)
C. Felt it foolish to answer some frankly (3)
D. Felt it a waste of time (-)

Group	Univ.	Division	Students Making Response A					Students Making Response B					Students Making Response C					Students Making Response D					No Response			All Questionnaire Respondents				
			Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Mean AAG		Per Cent			Number			Mean AAG	
			MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	MV	MN	FN	MV	MN	FN	MV	MN
GROUPS INCLUDING VETERANS WHO ENTERED COLLEGE AFTER WAR SERVICE**																														
1	CS	Arts	90	89	88	135	119	07	08	11	125	114	02	02	½	(139)	(113)	00	00	00	---	---	02	02	01	466	166	272	134	119
2	E	"	91	94	92	133	120	07	05	06	125	(150)	01	00	½	(127)	---	00	00	00	---	---	½	01	02	283	94	159	132	122
3	WS	"	96	93	92	135	127	03	05	07	(141)	(133)	½	00	¼	(155)	---	00	00	00	---	---	½	02	½	272	148	374	135	128
4	M	"	90	89	94	132	126	08	09	06	119	114	01	½	½	(148)	(180)	¼	00	00	(140)	---	01	02	½	425	193	216	131	125
5	S	"	93	90		133	128	04	08		(127)	134	00	½		---	(135)	01	¼		(95)	(180)	01	01		150	323		133	128
6	H	"	93	92	95	133	127	05	06	04	(112)	(157)	02	½	½	(143)	(178)	00	00	00	---	---	00	02	01	105	146	213	132	129
7	A	"	90	87		133	131	08	12		119	117	½	¼		(113)	(85)	½	¼		(133)	(95)	02	01		465	612		132	129
8	D	"	95	91	97	132	131	04	08	03	(130)	116	00	00	00	---	---	00	00	00	---	---	01	01	00	77	119	93	132	130
9	LS	"	89	91	92	128	131	07	08	05	(143)	(120)	02	04	½	(155)	(130)	00	00	00	---	---	02	01	02	103	107	134	130	130
10	MC	"	84	86				08	08				04	06				02	00				01	00		83	72			
11	EC	"	79	78	84			17	20	15			02	01	00			00	00	00			02	½	02	53	147	285		
12	T	"	90	87	86	123	139	08	10	11	(140)	(129)	02	01	02	(150)	(100)	00	00	00	---	---	00	02	01	98	94	121	125	137
13	CS	"	90					03					03					00					03			63				
14	MT	Engr	92	93		140	111	04	06		122	(110)	½	00		(100)	---	½	00		(170)	---	03	01		267	122		139	111
15	MS	"	95	94		132	118	04	05		145	(136)	½	00		(105)	---	00	00		---	---	½	01		352	98		133	119
16	MC	"	93	90		129	132	04	07		(128)	112	01	02		(95)	(133)	00	00		---	---	02	02		167	171		129	130
17	ST	"	95	98				03	02				00	00				00	00				02	00		120	50			
18	MT	Agri	96	89		143	121	04	11		(100)	122	00	00		---	---	00	00		---	---	00	00		140	100		141	121
19	MW	Bus	91	81				06	17				01	00				00	00				02	02		232	58			
20	LS	"	95	86				04	12				½	02				00	00				½	00		142	65			
GROUPS INCLUDING VETERANS WHO RETURNED TO COLLEGE AFTER WAR SERVICE																														
21	EC	Arts	94	87		142	121	06	10		(175)	127	00	03		---	(90)	00	00		---	---	00	00		70	99		144	121
22	A	"	88	89		136	121	06	10		(141)	130	02	00		(165)	---	½	00		(150)	---	04	01		135	97		136	122
23	S	"	94	98				06	02				00	00				00	00				00	00		32	40			
24	MT	Engr	96					04					00					00					00			118				
25	MT	Agri	94					04					02					00					00			53				

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* A brief explanation of the organization of this table and the symbols employed is given on page A1.

** Students in these groups (except 12, 13, and 17) were freshmen when the questionnaire was administered.

RB-50-21

RESEARCH BULLETIN

ADJUSTMENT TO COLLEGE

A STUDY OF 10,000 VETERAN AND NON-VETERAN STUDENTS IN 16 AMERICAN COLLEGES

Appendix B.

1. Analysis of Covariance Procedure
2. Determination of Adjusted Average Grades
3. Testing Significance of Responses by the F-Test

Norman Frederiksen

and

W. B. Schrader

Educational Testing Service

August 29, 1950

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ANALYSIS OF COVARIANCE PROCEDURE

The design and general theory of the analysis of covariance procedure used in this study have been described by Gulliksen and Wilks (42). The specific operational procedures employed in making the calculations were developed by Dr. Ledyard R Tucker and Mrs. Judith E. R. Aronson. These procedures are presented here because it is believed that they will prove to be useful in further applications of the procedure to the many analogous problems which arise in psychological and educational research.

Notation: In the discussion which follows, the following notation will be employed:

k = number of groups

h = number of predictor variables

Y = criterion variable

X = predictor variable

$C_{X_iX_j}$ = covariance between X_i and X_j

$C_{X_{ii}}$ = variance of X_i

b_i = regression weight

t = square of the standard error of estimate

General Procedure for Determining the Variance Error of Estimate. In carrying out the analysis, it is necessary to determine the variances and covariances for all pertinent variables in each group separately. The regression coefficient for each predictor is also determined for each group separately. Four decimal places are carried in all recorded entries.

In order to solve for t, the variance error of estimate, it is necessary to compute gi in each of the following equations:

$$
\begin{aligned}
g_1 &= b_1C_{X_1X_1} + b_2C_{X_1X_2} + \dots + b_hC_{X_1X_h} \quad .\\
g_2 &= b_1C_{X_1X_2} + b_2C_{X_2X_2} + \dots + b_hC_{X_2X_h} \quad .\\
g_3 &= b_1C_{X_1X_3} + b_2C_{X_2X_3} + \dots + b_hC_{X_3X_h} \quad .\\
&\vdots\\
g_h &= b_1C_{X_1X_h} + b_2C_{X_2X_h} + \dots + b_hC_{X_hX_h} \quad .
\end{aligned}
$$

For the criterion,

$$g_Y = b_1 C_{X_1 X_Y} + b_2 C_{X_2 X_Y} + \ldots + b_h C_{X_Y X_h} .$$

The values so obtained may be used to determine a value j, where:

$$j = b_1 g_1 + b_2 g_2 + b_3 g_3 + \ldots + b_h g_h .$$

Then, $t = C_{YY} - \frac{g_Y^2}{j}$. This is the value of the square of the standard error of estimate for the group, that is, the variance error of estimate. The multiple correlation coefficient may of course be determined from the same constants, as follows:

$$R = \sqrt{\frac{g_Y^2}{j} \; \frac{1}{C_{yy}}}$$. This value was routinely computed.

Testing Hypothesis A. The test of Hypothesis A depends essentially upon the *ratio* of the variance error of estimate in each subgroup to the weighted mean of the variance errors of estimates, where each variance is weighted according to the number of cases in the subgroup. The ratio for each subgroup is expressed as a natural logarithm, the result is multiplied by the number of cases in the subgroup, the sum is calculated, and the sign is reversed. The resulting value is distributed according to the χ^2 distribution with K-1 degrees of freedom, if N is reasonably large. In the actual calculations, the weighted sum of the ratios of the individual group variances to the weighted mean variance was computed, as a check step. This value should equal the total number of cases.

Testing Hypothesis B. The test of Hypothesis B requires the calculation of the variance error of estimate for the total group on the assumption that the mean of each variable is the same in all subgroups. This error of estimate may readily be obtained by determining the weighted average of the variances and covariances in the various groups, and then proceeding to compute the variance error of estimate in the manner described above. This variance error of estimate is designated as $\hat{t}$.

The test of Hypothesis B depends essentially on the ratio of $\hat{t}$ to the weighted average of the variance errors of estimate in the various subgroups, which was computed in connection with the test of Hypothesis A. In making the significance test, the ratio of these values was computed, the result was expressed as a natural logarithm, the resulting logarithm was multiplied by the number of cases, and the sign of the result was reversed. The value so obtained, G_B, is distributed as χ^2 with (K-1)h degrees of freedom when N is reasonably large.

Testing Hypothesis C. The testing of Hypothesis C requires the calculation of the variance error of estimate for the total group from the raw scores, without regard to subgroup means and standard deviations. Once the variances and covariances for the total group have been obtained in this way, the variance error of estimate may be computed in the usual way. The variance error of estimate for the total group is designated as $\tilde{\tilde{t}}$.

The test of Hypothesis C depends on the ratio of $\tilde{\tilde{t}}$ to $\tilde{t}$, which was computed in connection with the testing of Hypothesis B. In making the significance test, the ratio of these values was computed, the result was expressed as a natural logarithm, the resulting logarithm was multiplied by the number of cases, and the sign of the result was reversed. The value so obtained, G_C, is distributed as χ^2 with K-1 degrees of freedom.

Note on Natural Logarithms. In the calculations involved in the analysis of covariance, the use of natural logarithms is required. The following procedure was employed in determining these values: first, the common logarithm (logarithm to the base 10) was determined, using the tables of the *Handbook of Chemistry and Physics*, which gives seven-place mantissas for 5-digit numbers between 1 and 2 without interpolation. For numbers which did not begin with 1, five digits were used, by linear interpolation in the fifth digit, to obtain five-place mantissas. The common logarithm so obtained was multiplied by 2.30258509 to obtain the natural logarithm.

Example. There follows an example of a two-predictor problem completely worked out. This example also illustrates the form used in the calculations. In this example, the measures are expressed in the transmuted units used in the original calculations of the variances and covariances, since a linear transformation of all scores for a particular variable will not affect the outcome of the analysis of covariance tests.

ANALYSIS OF COVARIANCE

GROUP: Adams-Entered '46 PROJECT: ——

DATE: ——

CRITERION (Y) first-year grades

PREDICTORS (X_1) SAT-V

(X_2) SAT-M

(X_3) ______

SAMPLE 1 Vets SAMPLE 3 ______

SAMPLE 2 Non Vets SAMPLE 4 ______

REFERENCE FOR DATA: Accompanying intercorrelation and multiple correlation forms.

GENERAL INFORMATION:

a) $\frac{S}{n} = t$ = error of variance of prediction (generalized formula).

b) Covariances to be used in solving for t, $\tilde{t}$, and $\tilde{\tilde{t}}$, to be obtained from accompanying intercorrelation forms where the C entries are, respectively, computed for each sample, computed from the weighted averages of the C entries for the sample, and computed after totalling sums and n's over the samples.

c) t, $\tilde{t}$, and $\tilde{\tilde{t}}$ to be solved for by using accompanying multiple correlation forms where covariances (above) are used instead of correlation coefficients. Then:

1) For each predictor compute:

$$g_1 = b_1C_{X_1X_1} + b_2C_{X_1X_2} + b_3C_{X_1X_3} + \dots .$$

$$g_2 = b_1C_{X_1X_2} + b_2C_{X_2X_2} + b_3C_{X_2X_3} + \dots .$$

$$g_3 = b_1C_{X_1X_3} + b_2C_{X_2X_3} + b_3C_{X_3X_3} + \dots .$$

etc.

2) For the criterion compute:

$$g_Y = b_1C_{YX_1} + b_2C_{YX_2} + b_3C_{YX_3} + \dots .$$

3) Compute:

$$j = b_1g_1 + b_2g_2 + b_3g_3 + \dots .$$

4) Compute:

$$t = C_{YY} - \frac{g_Y^2}{j}$$

d) Notation:

α = sample designation
h = number of independent variables (predictors)
k = number of samples

HYPOTHESIS A: EQUALITY OF ERRORS OF ESTIMATE

Sample(α)	N_α	$\frac{S_\alpha}{N_\alpha}$ or t_α	$\frac{t_\alpha}{t}$	$\ln \frac{t_\alpha}{t}$
Vets	531	113.6254	.9349	-.0673
Non Vets	694	127.5952	1.0498	.0486
▨	1225	121.5397	1224.9931	-2.0079
▨	$N = \sum_\alpha^k N_\alpha$	$t = \frac{1}{N} \sum_\alpha^k N_\alpha t_\alpha$	$\sum_\alpha^k N_\alpha \frac{t_\alpha}{t}$	$\sum_\alpha^k N_\alpha \ln \frac{t_\alpha}{t}$

P = >.50 <.95

k	d.f.
2	1
3	2
4	3

Degrees of Freedom

$G_A = -\sum_\alpha^k N_\alpha \ln \frac{t_\alpha}{t}$

= 2.0079

70-80

HYPOTHESIS B: PARALLEL REGRESSION PLANES

$\breve{t}$ = 121.6156

$\frac{t}{\breve{t}}$ = .9994

$\ln \frac{t}{\breve{t}}$ = -.0005987

P = >.50 <.95

k \ h	1	2	3
2	1	2	3
3	2	4	6
4	3	6	9

Degrees of Freedom

$G_B = -N \ln \frac{t}{\breve{t}}$

= .7334

70-80

HYPOTHESIS C: EQUALITY OF INTERCEPTS

$\tilde{\tilde{t}}$ = 121.7391

$\frac{\breve{t}}{\tilde{\tilde{t}}}$ = .9990

$\ln \frac{t}{\tilde{\tilde{t}}}$ = -.0009901

P = >.20 <.30

k	d.f.
2	1
3	2
4	3

Degrees of Freedom

$G_C = -N \ln \frac{\breve{t}}{\tilde{\tilde{t}}}$

= 1.2129

B1-6

ANALYSIS OF COVARIANCE

(Supplementary Form)

Group: Adams-Entered '46-Vets Project: — Date: —

MULTIPLE CORRELATION COMPUTING FORM

Predictor Variables (X)	Criterion Variable (Y)	Formulas
1 SAT-V		$C_{yy}R^2 = \frac{g_y^2}{j} = 33.5381$
2 SAT-M	Y First-year Grades	$R = \sqrt{\frac{g_y^2}{j}\left(\frac{1}{C_{yy}}\right)} = .4774$
3		$t = C_{yy} - (C_{yy}R^2) = 113.6254$

N = 531

R TABLE (*)

	X_1	X_2	X_3	Y	Σ
X_1	87.0598	18.1601		46.7417	151.9616
X_2	18.1601	69.7344		33.3460	121.2405
X_3					
Y	46.7417	33.3460		147.1635	227.2512
Σ	151.9616	121.2405		227.2512	500.4533

	g
g_1	46.7454
g_2	33.3464
g_3	
g_y	33.5399
Ch	113.6317
Σ	113.6317

j $\boxed{33.5417} = b_1g_1 + b_2g_2 + b_3g_3$

A TABLE

	X_1	X_2	X_3	Y	Ch	Σ
X_1	9.3306	1.9463		5.0095	16.2864	16.2864
X_2	0.0000	8.1207		2.9057	11.0264	11.0264
X_3						

b	.4623	.3578	
	X_1	X_2	X_3

(*) Covariances

B1-7

ANALYSIS OF COVARIANCE

(Supplementary Form)

Group: Adams-Entered '46-Non Vets Project: —— Date: ——

MULTIPLE CORRELATION COMPUTING FORM

Predictor Variables (X)

1 SAT-V

2 SAT-M

3

N = 694

Criterion Variable (Y)

Y First-year Grades

Formulas

$C_{yy}R^2 = \frac{g_y^2}{j} =$ 33.6981

$R = \sqrt{\frac{g_y^2}{j}\left(\frac{1}{C_{yy}}\right)} =$ .4571

$t = C_{yy} - (C_{yy}R^2) =$ 127.5952

R TABLE (*)

	X_1	X_2	X_3	Y	Σ
X_1	74.1922	11.8871		42.7593	128.8386
X_2	11.8871	63.5480		30.4762	105.9113
X_3					
Y	42.7593	30.4762		161.2933	234.5288
Σ	128.8386	105.9113		234.5288	469.2787

	g
g_1	42.7579
g_2	30.4786
g_3	
g_y	33.6983
Ch	106.9348
Σ	106.9348

j $\boxed{33.6985} = b_1 g_1 + b_2 g_2 + b_3 g_3$

A TABLE

	X_1	X_2	X_3	Y	Ch	Σ
X_1	8.6135	1.3801		4.9642	14.9578	14.9578
X_2		7.8513		3.0091	10.8604	10.8604
X_3						

b	.5149	.3833	
	X_1	X_2	X_3

(*) Covariances

B1-8

ANALYSIS OF COVARIANCE

(Supplementary Form)

Group: Adams-Entered '46-Weighted Project: —— Date: ——

MULTIPLE CORRELATION COMPUTING FORM

Predictor Variables (X)	Criterion Variable (Y)	Formulas
1 SAT-V		$C_{yy}R^2 = \frac{g_y^2}{j} =$ 33.5529
2 SAT-M	Y First-year Grades	$R = \sqrt{\frac{g_y^2}{j}\left(\frac{1}{C_{yy}}\right)} =$ .4650
3		$\hat{t} = C_{yy} - (C_{yy}R^2) =$ 121.6156

N =

R TABLE (*)

	x_1	x_2	x_3	Y	Σ
x_1	79.7699	14.6063		44.4855	138.8617
x_2	14.6063	66.2296		31.7202	112.5561
x_3					
Y	44.4855	31.7202		155.1685	231.3742
Σ	138.8617	112.5561		231.3742	482.7920

	g
g_1	44.4888
g_2	31.7187
g_3	
g_y	33.5540
ch	109.7615
Σ	109.7615

j $\boxed{33.5551}$ $= b_1 g_1 + b_2 g_2 + b_3 g_3$

A TABLE

	x_1	x_2	x_3	Y	ch	Σ
x_1	8.9314	1.6354		4.9808	15.5476	15.5476
x_2		7.9722		2.9571	10.9292	10.9293
x_3						

b	.4898	.3709	
	x_1	x_2	x_3

(*) Covariances

B1-9

A N A L Y S I S   O F   C O V A R I A N C E

(Supplementary Form)

Group: Adams-Entered '46-Total   Project: ——   Date: ——

MULTIPLE CORRELATION COMPUTING FORM

Predictor Variables (X)

1 SAT-V
2 SAT-M
3

N = 1225

Criterion Variable (Y)

Y First-year Grades

Formulas

$C_{yy}R^2 = \frac{g_y^2}{j} = 33.8722$

$R = \sqrt{\frac{g_y^2}{j}\left(\frac{1}{C_{yy}}\right)} = .4666$

$\hat{t} = C_{yy} - (C_{yy}R^2) = 121.7391$

R TABLE (*)

	x_1	x_2	x_3	Y	Σ
x_1	81.7856	15.8589		45.4303	143.0748
x_2	15.8589	67.0080		32.3073	115.1742
x_3					
Y	45.4303	32.3073		155.6113	233.3489
Σ	143.0748	115.1742		233.3489	491.5979

	g
g_1	45.4287
g_2	32.3043
g_3	
g_y	33.8703
Ch	111.6033
Σ	111.6033

$j\ \boxed{33.8684} = b_1g_1 + b_2g_2 + b_3g_3$

A TABLE

	x_1	x_2	x_3	Y	Ch	Σ
x_1	9.0436	1.7536		5.0235	15.8206	15.8207
x_2		7.9958		2.9388	10.9346	10.9346
x_3						

	x_1	x_2	x_3
b	.4842	.3675	

(*) Covariances

DETERMINATION OF ADJUSTED AVERAGE GRADES

In computing Adjusted Average Grades, it was desired to determine the differences between observed and predicted grades in such a way that the resulting distribution would have a mean of 130 instead of 0 and a standard deviation equal to 40 rather than equal to the standard error of estimate. An efficient procedure for determining the needed constants was worked out by Dr. Ledyard R Tucker and Miss Henrietta Gallagher.

The following example illustrates the two-predictor case; the generalization, however is obvious:

Let

Ƶ = Adjusted Average Grade,

Y = Criterion Measure,

X_i = Predictor,

b_i = Multiple regression weight,

A, B, C and D = Constants to be determined,

σ_y = Standard Error of Estimate of Y.

Then,

$$\text{Ƶ} = AY - B X_1 - C X_2 + D \quad .$$

The following relations will hold:

$$A = \frac{40}{\sigma_y} \quad .$$

$$B = A b_1 \quad .$$

$$C = A b_2 \quad .$$

$$D = 130 \; (A M_Y - B M_1 - C M_2) \quad .$$

(In practice, D was increased by 5, and the units digit of the computed AAG was dropped.)

The Mean of Ƶ will be:

$$\text{Ƶ} = A M_Y - B M_{X_1} - C M_{X_2} + D = 130 \quad .$$

If C_{YY} represents a variance and $C_{X_1X_2}$ represents a covariance,

$$\sigma_Z = \sqrt{A^2C_{YY} + B^2C_{X_1X_1} + C^2C_{X_2X_2} - 2ABC_{YX_1} - 2ACC_{YX_2} + 2BCC_{X_1X_2}} \quad .$$

The following very useful checks on the constants were employed, using variances and covariances from the original correlation table, and the value of the multiple correlation coefficient, R, previously determined.

$$r_{ZX_1} = \frac{1}{\sigma_1 \, \sigma_Z} \left(AC_{YX_1} - BC_{X_1X_1} - CC_{X_1X_2} \right) = 0.$$

$$r_{ZX_2} = \frac{1}{\sigma_2 \, \sigma_Z} \left(AC_{YX_2} - BC_{X_1X_2} - CC_{X_2X_2} \right) = 0.$$

$$r_{ZY} = \frac{1}{\sigma_Y \, \sigma_Z} \left(AC_{YY} - BC_{YX_1} - CC_{YX_2} \right) .$$

Then: $r^2_{ZY} + R^2_{Y \cdot X_1X_2} = 1$.

In all, AAG's were determined for 16 college groups In nine of these groups the same students were included both in the analysis of the academic data and in the analysis of the questionnaire data. In all nine of these matching groups, the mean AAG when calculated fell between 129 and 131. The standard deviations in all but one instance fell between 39 and 41 when calculated directly from the two-digit AAG's. (In the one exceptional instance, Miller, an error was discovered in three cases when the distribution of AAG's was inspected. The preliminary analysis was reworked to make it exact. It was judged, however, that the mean of 129 and standard deviation of 38 obtained when the corrected scores were substituted into the initial equation were so close to the desired value as to make recomputing of the AAG's unnecessary.)

In six of the groups where some of the students who were included in the academic analysis were excluded from the questionnaire analysis, the following values were obtained for the mean and standard deviation of Adjusted Average Grade:

Group	Mean AAG	SD of AAG
Western State	133	38
Stewart	130	40
Adams	130	40
Taylor	131	40

Group	Mean AAG	SD of AAG
Midwest Tech (Engr.)	130	40
Eastern City (Interrupts)	130	41
Adams (Interrupts)	130	41

It would appear then that excluding the students who failed to complete questionnaires did not have a very great effect upon the mean or standard deviation of the total group. In most instances, as reported in Table 2 of Chapter II, the number of students so excluded was rather small.

In the seventh group (Midwest Tech Agriculture students who entered in 1946) the mean AAG was 133 and the standard deviation 40. This deviation from the desired value of 130 was ascertained to be the result of a small difference between the mean used in computing the constant term in the equation and the effective mean of the grades used in computing AAG. It will be noted that this error does not affect in any way the correlational properties of the resulting AAG values. Questionnaires were available for all but two of the members of this group.

TESTING SIGNIFICANCE OF RESPONSES BY THE F-TEST

In order to determine the significance of the relationship of an item response to Adjusted Average Grade, using the F-test, the following procedure was applied:

Let

M_T = mean AAG in total group,

σ_T = standard deviation of AAG in total group,

N_T = number of cases in total group,

p_A = per cent of cases in Category A,

M_A = mean AAG of cases in Category A,

F_{05} = value of F needed for significance at 5% level for 1 and $N_T - 2$ degrees of freedom,

F_{01} = value of F needed for significance at 1% level for 1 and $N_T - 2$ degrees of freedom.

Then, it may be shown that if

$$\left|\left(M_A - M_T\right)\right| > \sqrt{\left(\frac{F_{05}}{F_{05} + N_T - 2}\right)} \left(\sigma_T\right) \sqrt{\left(\frac{1 - p_A}{p_A}\right)} \quad ,$$

the difference between M_A and the remainder of the group is significant at the 5% level. A similar relationship can be written for the 1% level.

Using these relationships, and values of σ_T for each group answering the questionnaire, the value of $M_A - M_T$ needed for significance for each value of p_A was tabulated. These tables were then used to determine the level of significance of selected response categories for each item. It should be added that the test was undeniably rather coarse for large values of p.

The following values of σ_T were employed in making these tests:

College Group	σ_T for Veterans	σ_T for Nonveterans
Central State, Arts, 1946	3.9461	3.9289
Western State, Arts, 1946	3.9275	3.5429
Miller, Arts, 1946	3.7036	3.9518
Evans, Arts, 1946	4.0192	4.0370
Stewart, Arts, 1946	4.0932	3.935

College Group	σ_T for Veterans	σ_T for Nonveterans
Harris, Arts, 1946	4.1470	3.7922
Adams, Arts, 1946	3.8410	4.1067
Douglas, Arts, 1946	4.0646	4.0314
Littletown State, Arts, 1946	3.8299	4.1728
Taylor, Arts, 1946	3.5232	4.3171
Midwest Tech, Engr., 1946	3.7875	3.6992
Middle State, Engr., 1946	3.9469	3.7193
Midwest City, Engr., 1946	3.8038	4.1611
Midwest Tech, Agriculture, 1946	4.1981	3.5017
Eastern City, Interrupted	3.9970	3.8299
Adams, Interrupted	4.0450	4.1349

RB-50-22

This Bulletin is a draft for interoffice circulation Corrections and suggestions for revision are solicited. The Bulletin should not be cited as a reference without the specific permission of the author. It is automatically superseded when a report of the research is published in the literature.

RESEARCH BULLETIN

ADJUSTMENT TO COLLEGE

A STUDY OF 10,000 VETERAN AND NON-VETERAN STUDENTS IN 16 AMERICAN COLLEGES

Appendix C.

1. Directions for Group Administration of the Student Opinion Questionnaire
2. The Student Opinion Questionnaire
3. Excerpts from Coding Key and the Coding Manual
4. Bibliography

Norman Frederiksen

and

W. B. Schrader

Educational Testing Service

August 29, 1950

DIRECTIONS FOR ADMINISTERING THE CARNEGIE FOUNDATION VETERANS STUDY QUESTIONNAIRE

Before distributing the questionnaires, read the following paragraphs to the class. All material not enclosed in boxes or brackets is to be read to the students exactly as it is printed.

At the request of the Carnegie Foundation, the College Entrance Examination Board is making a study of factors related to scholastic success in college.

Part of the study will consist of relating various data on students' preparation and background to their grades in college. Another part, equally important, will consist of obtaining from a large cross-section of students information as to their activities, interests, and views on aspects of their college experience.

This [class, group] has been selected as part of the cross-section of students whose views are desired. The questionnaire which you will receive is being administered to several thousand students at a number of universities and colleges. You are asked to answer it as fully as possible and to be completely frank in your answers.

In order that the data contained in the questionnaire can be matched with grades and other data available from the Registrar's Office, it is necessary to ask your name. A sheet inserted in the questionnaire booklet has a space to print your name. The sheet is numbered the same as the questionnaire booklet. After your grades have been obtained from the Registrar, you will be identified only by the number on your booklet.

The questionnaires will be sent immediately to Princeton, N. J.; no one at this university will work with the questionnaires. No one using the questionnaire to prepare statistical tabulations will know whose questionnaire he is working with. Everything you write in this questionnaire will be held in strictest confidence. Please feel perfectly free to report your experiences and views without regard to what you think might be expected of you.

It is hoped that the information gained from this study will eventually result in improved methods of teaching and better educational opportunities for college students. No individual participating in the study will be directly affected by it, but each participant has a chance to describe his experiences and express his views to an influential group of educators. You are asked to express yourself as fully and as frankly as possible. There are no correct or incorrect answers to these questions; what is wanted is a report of your experiences and your opinions.

In just a moment, the questionnaires will be distributed. Please read the brief instructions on the front cover and then read the questions on the first page without answering them. There are one or two definitions that we might agree on in order to insure comparability of answers to these questions.

Distribute the questionnaires.

If you will turn to question one, you will note that it calls for college, school, or division. For [name of university] students this means

____.

In questions two and eight (1), by "terms completed" is meant the number of [semesters or quarters] of full-time study for which you received grades, regardless of how many courses you passed in any term. If you completed a session of summer school or took work at some other college with a [quarter or semester] system rather than a [semester or quarter] system, please note this in the space for comments.

In answering question three, give the number of credit hours as indicated in the college announcement. [Explain if necessary.]

Now print your name on the inserted sheet and fill in the other blanks.

Check to make sure that the number on this sheet is *exactly* the same as the number on the questionnaire. If it is *not* the same, please raise your hand.

If any case is found where the two numbers do not agree, collect the booklet and inserted sheet and give the student a booklet and inserted sheet whose numbers are the same.

Collect the inserted sheets after they have been filled out.

Now you may begin work.

Collect the questionnaires at the end of the period.

No. 06206

COLLEGE ENTRANCE EXAMINATION BOARD

Study of Scholastic Achievement

sponsored by

Carnegie Foundation for the Advancement of Teaching

Student Opinion Questionnaire

Directions

1. Please read each question through carefully before giving your answer.
2. Answer questions in the order in which they appear.
3. Answer every question. If the suggested answers do not quite fit your views, check the one that comes nearest to what you want to say, and then explain your views in the margins or comment space provided.
4. Make no marks in the "Code" boxes which you will find near certain questions.
5. Raise your hand and ask questions about any item whose meaning is not clear to you.
6. Remember, honest and frank reports of your views and experiences are the only "correct" answers.

Inside the front cover of this booklet you will find a sheet of paper on which is stamped the same number as appears on this booklet. Please print your name, last name first, in the space provided on the sheet, and also fill in the name of your college or university and the date.

It is necessary to ask you to record your name in order that your college grades can be obtained from the registrar's office. After the grades have been obtained, you will be identified only by the number which appears on this booklet. No one working with the questionnaire will know the name of the person who filled it out.

No. 06206

Please print:

Name ____
Last First Middle

Date of first entry at this university ______________________
Month Year

Name of University ______________________ Date ______________

> Please check to make sure that the number on this sheet is exactly the same as the number on the front of the questionnaire. If it is not the same, report to your supervisor that there is a discrepancy.

1. In what college, school, or division (e.g., liberal arts, engineering, business administration) are you now enrolled?

Code ____

2. Check the number of full terms you had completed in this or any other college prior to the beginning of the present term.

1_____ No terms previously completed
2_____ Completed one term
3_____ Completed two terms
4_____ Completed three terms
5_____ Completed four or more terms

Code Comments: ______________________________________

3. How many course credits had you accumulated prior to the beginning of the present term?

Code _____ course hours or course units (as defined in the college where you are now enrolled)

4. When did you first begin attending the college or university you are now attending? (Check one.)

1_____ Prior to September 1944
2_____ September 1944 to August 1945 inclusive
3_____ Fall 1945
4_____ Winter or Spring 1946
5_____ Summer 1946
6_____ Fall 1946
7_____ Winter or Spring 1947

5. Have you ever attended any other college or university? (Check as many as apply.)

1_____ Yes, while in military service
2_____ Yes, as a civilian
3_____ No

6. (a) What kind of secondary school did you last attend before enrolling in college?

1_____ Private preparatory school
2_____ Public high school
3_____ Parochial school

(b) When were you last in full time attendance in high school or preparatory school?

1_____ Prior to 1940
2_____ 1940
3_____ 1941
4_____ 1942
5_____ 1943
6_____ 1944
7_____ 1945
8_____ 1946

7. Have you served in the Armed Forces (Army, Navy, Marine Corps, Coast Guard), the Merchant Marine, or the Field Services (uniformed civilians serving with the Armed Forces) at any time since September 1940?

1_____ Yes
2_____ No

IF YOU ANSWERED YES TO QUESTION 7, THEN ANSWER THE FOLLOWING QUESTIONS.
IF YOU ANSWERED NO, GO TO QUESTION 9 ON PAGE 6.

8. (a) In which of the following did you serve? (Check any that apply.)

1_____ Army
2_____ Navy
3_____ Marine Corps
4_____ Coast Guard
5_____ Merchant Marine
6_____ Field Services (Specify which one ____________)

(b) How many months were you in service (on active duty, whether in training or in duty assignments)?

1_____ Less than 6 months
2_____ 6 months up to 12 months
3_____ 12 months up to 18 months
4_____ 18 months up to 24 months
5_____ 24 months up to 36 months
6_____ 36 months up to 48 months
7_____ 48 months or more

(c) What was the highest rating, rank, or grade you held while in service?

Code

____

(d) While in service, how many months did you spend in college training courses such as V-12, ASTP, CTD, or Pre-Flight?

1_____ I did not take any college training courses
2_____ One month up to three months
3_____ Three months up to six months
4_____ Six months up to twelve months
5_____ Twelve months or more

(e) Did you take any courses from USAFI (United States Armed Forces Institut while in service?

1_____ No
2_____ Yes What courses? ____________________

Code

____

8. (Continued)

(f) Did you serve outside the United States, either during or after hostilities? (Check any that apply.)

1_____ No
2_____ Served on sea duty
3_____ Served in land areas outside the U. S. What areas?_____________

Code ____

(g) If you served on sea duty or in areas outside the United States, what was the total length of such service?

1_____ I did not serve on sea duty or in areas outside the U. S.
2_____ Less than 6 months
3_____ 6 months up to 12 months
4_____ 12 months up to 18 months
5_____ 18 months up to 2 years
6_____ 2 years up to 3 years
7_____ 3 years up to 4 years
8_____ 4 years or more

(h) When were you separated from the service? (The date you went off active duty; do not count terminal leave as active duty.)

1_____ Prior to 1943
2_____ 1943
3_____ 1944
4_____ 1945
5_____ 1946

(i) When did you start attending college after leaving military service?

1_____ Prior to 1945
2_____ Spring of 1945
3_____ Summer of 1945
4_____ Fall of 1945
5_____ Spring of 1946
6_____ Summer of 1946
7_____ Fall of 1946
8_____ Spring of 1947

(j) When did you first decide definitely that you would go to college?

1_____ I decided before I had graduated from high school
2_____ I decided after I had worked awhile, but before I entered the service
3_____ I decided while in service that I would go
4_____ I decided after discharge from the service

8. (Continued) (Questions for veterans)

(k) Had you applied to any college or university for admission before you entered military service?

1_____ Yes, and I started to attend before entering the service
2_____ Yes, but I did not actually attend before entering the service
3_____ No, I had not applied

(l) If you started attending college before you entered the service, how many terms of college did you complete before leaving for military service?

1_____ I did not start attending college before I entered the service
2_____ I started college but completed no terms
3_____ Completed one term
4_____ Completed two terms
5_____ Completed three terms
6_____ Completed four or more terms

Code

Comments: ______________________________

(m) Regardless of how you felt about going to college when you left high school, do you think you actually would have gone to college if you hadn't entered military service? (Check one.)

1_____ I did start college before entering military service
2_____ Yes, I'm sure I would have gone
3_____ I probably would have gone, but I'm not sure
4_____ I might have gone, but probably would not have
5_____ No, I'm almost sure I would not have gone to college

(n) Are you now drawing (or have you applied for) veterans' educational benefits from the Veterans Administration? (Check any that apply to you.)

1_____ Yes, under Public Law 346 (the "G.I. Bill")
2_____ Yes, under Public Law 16 (for disabled veterans)
3_____ I am drawing state, Canadian, or other veterans' benefits
4_____ No, I have not applied for veterans' educational benefits

(o) Do you think you would have come to college after completing your military service if the financial aid provided by veterans' benefits had not been available to you?

1_____ Yes, I am quite sure I would have come anyway
2_____ I probably would have come, but I'm not sure
3_____ I might have come, but I probably would not have come
4_____ No, I am quite sure I would not have come to college

8. (Continued) (Questions for veterans)

(p) On the whole, would you say that your experience while in service made you more eager to go to college or less eager?

1_____ Made me more eager to go
2_____ Did not change my feeling about college one way or another
3_____ Made me less eager to go

(q) On the whole, how would you say your military service experience, or the fact of having been in service, has affected your ability to do good scholastic work in college?

1_____ Experiences while in service have increased my ability to do good scholastic work
2_____ Experiences while in service have decreased my ability to do good scholastic work
3_____ My service experience has not affected my ability to do good scholastic work

(r) (1) In general, regardless of the reasons, would you say you are doing better or worse in your college work than you would have done if you had gone on with your schooling instead of going into the service?

1_____ Now doing better than I would have done
2_____ Now doing worse than I would have done
3_____ Doing neither better nor worse

(2) What is the most important reason for your answer?

Code

____

____

____

____

EVERYONE SHOULD ANSWER THESE QUESTIONS

9. (a) After leaving high school, but before you entered military service or started attending college, did you ever work full-time for salary, wages, or commission (other than a vacation job)?

1_____ Yes, I worked at a full-time job
2_____ No, I did not have a full-time job

(b) If you worked full-time before entering military service or college, how long were you employed?

1_____ I did not work full-time
2_____ Less than six months
3_____ Six months up to one year
4_____ One year up to two years
5_____ Two years up to four years
6_____ Four years or more

10. What would you say were the chief reasons for your coming to college? (Put a "1" in front of the item that best expresses what you consider the most important reason and a "2" and "3" in front of the next most important reasons.)

a _____ I wanted a chance to enjoy college life
b _____ I wanted to make social contacts and develop my social skills
c _____ I wanted to prepare myself for a better-paying job than I would otherwise be able to get
d _____ A college degree is necessary in order to enter the profession I have chosen
e _____ I wanted to increase my general knowledge
f _____ I wanted a chance to find out what line of work I would be most interested in
g _____ My family and friends expected me to come
h _____ Coming to college just seemed the logical thing to do

11. What kind of work are you planning to do after you finish your studies? (Describe the job as specifically as you can.)

Code

____

____

____

12. How sure do you feel that you will actually do this general kind of work?

1_____ I am almost certain
2_____ I probably will, but may do something else
3_____ I am not at all sure what I shall do

13. How important is it for you to __graduate__ from college in order to do the kind of work you are planning to do?

1 _____ I can't do that kind of work unless I have a college degree
2 _____ A college degree will help a good deal but isn't absolutely necessary
3 _____ Having a college degree isn't at all necessary for the kind of work I want to do

14. How important do you think college __grades__ will be in relation to the kind of opportunities that will be available to you after college?

1 _____ Very important
2 _____ Fairly important
3 _____ Hardly important at all

15. If you could be admitted to (and could get housing at) any other university you might choose, do you think you would still want to attend the institution at which you are now studying?

1 _____ Yes, I'm quite sure I would still want to attend the university I am now attending
2 _____ I might want to go elsewhere, but I'm not sure
3 _____ No, I would definitely attend some other university

16. Is the school or division (e.g., arts, engineering) in which you are now studying your first choice, or would you prefer to major in some other school or division in the same institution?

1 _____ I am now in the field of my first choice
2 _____ I would prefer to major in some other school or division

17. How would you rate, as teachers, the faculty members who have taught you this past term?

1 _____ All are good teachers
2 _____ Most are good teachers
3 _____ Some are good, some rather poor
4 _____ Most are rather poor teachers
5 _____ All are rather poor teachers

18. In general, are you enjoying your studies in college this term as much as you had expected to?

1 _____ No, I am enjoying them less than I had expected to
2 _____ Enjoying them about as I expected to
3 _____ Enjoying them more than I expected to

19. How many courses are you taking for credit at the present time?

Code

_________ courses or _________ credit hours

20. Have you found it more or less difficult to keep up in your work this term than you had expected it to be?

1_____ Much more difficult than I had expected
2_____ Somewhat more difficult
3_____ About as I had expected
4_____ Somewhat less difficult than I had expected
5_____ Much less difficult

21. Are you planning to take your degree in less than the usual amount of time spent (either by attending summer sessions or by taking a heavier than normal load of courses)?

1_____ Yes, I am planning to take my degree in less than the usual amount of time
2_____ No, I am planning to take my degree in the usual time
3_____ I am planning to take somewhat longer than the usual time

22. During the past week, how many hours did you spend at each of the following activities? (If the past week was not typical, indicate the number of hours for a typical week.)

Hours per week

Code

a _____ Attending classes, labs, regularly scheduled course conferences
b _____ Studying in your room, the library, or elsewhere
c _____ Athletics and physical recreation (not counting physical educatic courses)
d _____ Other organized extra-curricular activities (except social affairs)
e _____ Social activities and recreation — dates, parties, movies, etc.
f _____ Attending public lectures, concerts, and other cultural activities
g _____ Bull sessions
h _____ Paid employment
i _____ Other non-routine activities (Specify: _______________________________)

23. For how many of the courses you are now taking have you done reading or studying beyond the requirements of the course (e.g., reading or research on aspects of the subject matter which are not required for examinations or reports)?

1_____ None of them
2_____ Some, but less than half
3_____ About half of them
4_____ Most of them
5_____ All of them

24. About how many hours did you spend during the past seven days in reading or studying materials which are related to courses you are taking but which are not a part of course requirements?

1 ____ None, or less than one hour
2 ____ One hour up to two hours
3 ____ Two hours up to four hours
4 ____ Four hours up to six hours
5 ____ Six hours up to eight hours
6 ____ Eight hours up to ten hours
7 ____ Ten hours or more

25. How often, during the past four weeks, have you gone to evening lectures given by visiting lecturers or local faculty members but not required by any specific course?

1 ____ Not at all
2 ____ Once
3 ____ Twice
4 ____ Three or more times

26. (a) When you first enrolled in this college or university, how well do you feel that you were prepared, by virtue of your previous education and experience, for getting the most out of your courses?

1 ____ Very well prepared
2 ____ Fairly well prepared
3 ____ Poorly prepared

(b) For what courses or in what areas was your preparation inadequate?

Code ____

____

____

____

27. In general, do you have a satisfactory place to study, one that is free from noise and distraction and reasonably comfortable?

1 ____ Yes, entirely satisfactory
2 ____ Fairly satisfactory
3 ____ No, quite unsatisfactory

Comments: ____

Code ____

28. In general, would you say you usually exert strong effort to do good work in your courses, or do you tend to do just enough to get by?

1 _____ I usually exert strong effort in my courses
2 _____ I work fairly hard in some courses, not so hard in others
3 _____ I usually tend to do just enough work to get by with fair grades

29. In general, how well do you keep up to date in your study assignments?

1 _____ I usually have my assignments done before they are due
2 _____ I usually get assignments done on time
3 _____ I am usually a little late in getting assignments done
4 _____ I am usually far behind in my assignments or I don't do them at all

30. Where are you living at the present time?

1 _____ With parents or other near relatives
2 _____ In a college dormitory
3 _____ In a fraternity house
4 _____ In a rooming or boarding house
5 _____ In an apartment or house which I rent or own
6 _____ Other arrangements (Please specify: _______________
_______________________________________)

Code ☐

31. How large was the community in which your home was located during the time you were in high school? (If your residence was a suburb or town in a metropolitan area, check the population of the larger area.)

1 _____ On a farm or in the country
2 _____ In a village of less than 2,500
3 _____ In a town of 2,500-25,000
4 _____ In a city of 25,000-100,000
5 _____ In a city of over 100,000

32. When were you born?

1 _____ Before 1923
2 _____ 1923
3 _____ 1924
4 _____ 1925
5 _____ 1926
6 _____ 1927
7 _____ 1928
8 _____ 1929
9 _____ 1930 or later

33. What is your sex?

1 _____ Male
2 _____ Female

34. Are you:

1 _____ Single, not engaged to be married
2 _____ Single, engaged to be married
3 _____ Married
4 _____ Widowed, divorced, separated

IF YOU ARE MARRIED, ANSWER THE QUESTIONS IN THE BOX BELOW. IF NOT, GO TO QUESTION 36

35. (a) About how long have you been married?

1 _____ Five years or more
2 _____ Four years up to five years
3 _____ Three years up to four years
4 _____ Two years up to three years
5 _____ One year up to two years
6 _____ Less than one year

(b) How many children do you have?

1 _____ None
2 _____ One
3 _____ Two
4 _____ Three or more

(c) Has your wife (husband) been able to be here with you throughout the school year?

1 _____ No
2 _____ Yes
3 _____ Here now, but not throughout the year
4 _____ Here previously, but not here now

(d) How well satsified are you with the living arrangements you and your wife (husband) have at the present time?

1 _____ My wife (husband) is not living with me at present
2 _____ Very well satisfied
3 _____ Satisfied
4 _____ Somewhat dissatisfied
5 _____ Very much dissatisfied

Comments: ____

Code

____

(e) In general, do you feel that as a married student you are handicapped or benefited, relative to single students, in your studies?

1 _____ Handicapped by being married
2 _____ Neither handicapped nor benefited
3 _____ Benefited by being married

Comments: ____

Code

____

EVERYONE SHOULD ANSWER ALL QUESTIONS FROM HERE ON

36. On the whole, how well satisfied are you with the kind of education you are getting?

1 _____ Very well satisfied
2 _____ Fairly well satisfied
3 _____ Somewhat dissatisfied
4 _____ Very much dissatisfied

Comments: ____

Code

____

____

37. Of the courses you are now taking, how many would you say you are really interested in?

1 _____ None of them
2 _____ Some, but less than half
3 _____ About half of them
4 _____ Most of them
5 _____ All of them

38. Do you ever feel that the things you are studying in college are not really worth the time spent on them?

1 _____ Yes, I frequently feel that way
2 _____ I sometimes feel that way
3 _____ I seldom feel that way
4 _____ I never feel that way

Comments: ____

Code

____

____

39. Do you sometimes feel worried and anxious or upset?

1 _____ Yes, frequently
2 _____ Occasionally
3 _____ Seldom or never

40. Below are listed some sources of worry and anxiety which seem to be bothering a good many students at the present time. For each problem check the appropriate category to show how much you have been bothered by the problem during this term.

	1 Bothered Very Much	2 Bothered Some	3 Little or Not at all
a. Making ends meet financially	____	____	____
b. Lack of adequate housing accommodations	____	____	____
c. Illness or death in your family	____	____	____
d. Nervousness	____	____	____
e. Health problems (e.g., eyes, sinus trouble)	____	____	____
f. Getting accustomed to college study	____	____	____
g. Being unable to concentrate	____	____	____
h. Getting to know people socially	____	____	____
i. Strained personal relations with close relatives or friends	____	____	____
j. Feelings of inferiority, inability to compete with others or to live up to your own standards	____	____	____
k. Trying to decide what course of study to follow	____	____	____
l. Trying to make up a deficiency in preparation for some course	____	____	____
m. Relations with members of the opposite sex	____	____	____

41. Are there any problems not mentioned in the previous question which have been bothering you in the past six months?

1____ No
2____ Yes What general sort of problems? ______________________

Code

____

____

____

____

42. How much would you say that any of the problems mentioned on the previous page -- either the ones listed in Question 40 or any other -- have interfered with your college work in the past six months?

1 _____ Have not interfered at all
2 _____ Have interfered a little, but not much
3 _____ Have interfered a good deal

43. Approximately what was the annual income of the head of your family while you were in high school?

1 _____ $10,000 or more
2 _____ $6,000 up to $10,000
3 _____ $4,000 up to $6,000
4 _____ $2,000 up to $4,000
5 _____ under $2,000

44. How much formal education did your father have?

1 _____ Only grade school
2 _____ Attended high school but did not graduate
3 _____ Graduated from high school
4 _____ Attended college but did not graduate
5 _____ Graduated from college
6 _____ Attended graduate school or professional school after college

45. Briefly, what are the main changes you would like to see made in the program or organization of education at this college, in order to help you get what you are after in a college education? ______________________

Code

46. How did you feel about answering the questions contained in this questionnaire?

1 _____ I did not mind answering all of them frankly
2 _____ I felt rather hesitant about answering all of them frankly
3 _____ I felt that it would be foolish to answer some of the questions frankly

EXCERPTS FROM CODING KEY

Item	Code	Category*	Response		Question
			Army - Red Cross - Marine Corps	Navy - Coast Guard Merch. Marine	
8(c)	1	A	Private Priv. 1st cl. Corp. or T/5	Seaman 3/c Seaman 2/c Seaman 1/c	Highest rating, rank, or grade held while in service.
	2	B	Sgt. or T/4 S/Sgt. or T/3	PO 3/c PO 2/c	
	3	B	1st or Tech. Sgt. Master Sgt.	PO 1/c Chief PO	
	4	C	Warrant Off.	Warrant Off.	
	5	C	Cadet	Midshipman	
	6	D	2nd Lt. 1st Lt.	Ensign Lt. (j.g.)	
	7	D	Capt. Major	Lt. Lt. Comm.	
	8	E	Lt. Col. Colonel	Commander Captain	
	9	F	All Generals	Commodore and all Admirals	
8(r) (2)	1	A	Greater maturity; broader experience; more responsible, etc.		Most important reason for answer to 8(r)(1). (Are you doing better or worse in college work than you would have done if service duty had not intervened?) If two reasons given, code both.
	2	B	Increased appreciation of education; better sense of values, etc.		
	3	B	More definite purpose; know what I want, etc.		
	4	B	Better able to concentrate; to think clearly; to organize material, etc.		

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*The category letter indicates the grouping of codes used in the tables in Appendix A.

Item	Code	Category*	Response	Question
8(r) (2) (Cont.)	5	C	Impaired ability to absorb new information; have lost knack of studying and remembering.	
	6	D	Nervous tension resulting from wartime experiences; unable to concentrate; unable to properly organize materials or thoughts (includes results of mental or physical injuries).	
	7	D	Less certain of value of college; less inclined to study hard; less interest in grades; inclined to disregard college regulations.	
	8	C	Less well prepared because have forgotten relevant information, and study habits.	
	9	D	Do worse because of greater interest in, or need for, extracurricular activities (athletics; social, political or service work; members of opposite sex; drinking; care of dependents, etc.).	
11	1	A	Profession requiring graduate training.	What kind of work are you planning to do after you finish your studies?
	2	B	Profession probably requiring college degree, but not necessarily any graduate training.	
	3	C	Other professions or occupations.	
	4	C	Housewife (Females only).	
	5	C	Business or commerce (occupation unspecified).	

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*The category letter indicates the grouping of codes used in the tables in Appendix A.

Item	Code	Category*	Response	Question
11 (Cont.)	6	C	Agriculture, ranching, forestry, etc. (occupation unspecified).	
	7	C	Politics, civil service, military service (occupation unspecified).	
	8	D	Undecided or considering markedly different alternatives.	
	9	C	Either not planning to work for a living or planning to live on unearned income.	
22	1	Varied by College	Less than 14 hours	Division of typical week's time, by hours, into nine categories of activities.
	2		14-16 hours	
	3		17-19 hours	
	4		20-22 hours	
	5		23-25 hours	(a) Classes, labs, course conferences
	6		26-28 hours	
	7		29-31 hours	
	8		32-34 hours	
	9		More than 34 hours	
	1	A	0-4 hours	(b) Studying
	2	A	5-9 hours	
	3	A	10-14 hours	
	4	B	15-19 hours	
	5	B	20-24 hours	
	6	C	25-29 hours	
	7	C	30-34 hours	
	8	C	35-39 hours	
	9	C	More than 39 hours.	

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*The category letter indicates the grouping of codes used in the tables in Appendix A.

Item	Code	Category*	Response	Question
22 (Cont.)	1	A	0, 1 hours	(c) Athletics and physical recreation
	2	A	2, 3 hours	
	3	B	4, 5 hours	
	4	B	6, 7 hours	
	5	C	8, 9 hours	
	6	C	10, 11 hours	
	7	C	12, 13 hours	
	8	C	14, 15 hours	
	9	C	More than 15 hours	
	1	A	0, 1 hours	(d) Other organized extra-curricular activities (except social affairs)
	2	B	2, 3 hours	
	3	C	4, 5 hours	
	4	C	6, 7 hours	
	5	C	8, 9 hours	
	6	C	10, 11 hours	
	7	C	12, 13 hours	
	8	C	14, 15 hours	
	9	C	More than 15 hours	
	1	A	0, 1 hours	(e) Social activities and recreation--dates, parties, movies, etc.
	2	A	2, 3 hours	
	3	A	4, 5 hours	
	4	B	6, 7 hours	
	5	B	8, 9 hours	
	6	C	10, 11 hours	
	7	C	12, 13 hours	
	8	C	14, 15 hours	
	9	C	More than 15 hours	
	1	A	0, 1 hours	(f) Attending public lectures, concerts, and other cultural activities
	2	B	2, 3 hours	
	3	B	4, 5 hours	

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*The category letter indicates the grouping of codes used in the tables in Appendix A.

Item	Code	Category*	Response	Question
22 (Cont.)	4	B	6, 7 hours	
	5	B	8, 9 hours	
	6	B	10, 11 hours	
	7	B	12, 13 hours	
	8	B	14, 15 hours	
	9	B	More than 15 hours	
	1	A	0, 1 hours	(g) Bull sessions
	2	A	2, 3 hours	
	3	B	4, 5 hours	
	4	C	6, 7 hours	
	5	C	8, 9 hours	
	6	C	10, 11 hours	
	7	C	12, 13 hours	
	8	C	14, 15 hours	
	9	C	More than 15 hours	
	1	A	0, 1 hours	(h) Paid employment
	2	B	2, 3 hours	
	3	B	4, 5 hours	
	4	B	6, 7 hours	
	5	B	8, 9 hours	
	6	B	10, 11 hours	
	7	B	12, 13 hours	
	8	B	14, 15 hours	
	9	B	More than 15 hours	
	1	A	0, 1 hours	(i) Other non-routine activities
	2	B	2, 3 hours	
	3	B	4, 5 hours	
	4	B	6, 7 hours	
	5	B	8, 9 hours	

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*The category letter indicates the grouping of codes used in the tables in Appendix A.

Item	Code	Category[*]	Response	Question
22 (Cont.)	6	B	10, 11 hours	
	7	B	12, 13 hours	
	8	B	14, 15 hours	
	9	B	More than 15 hours	
41	1	A	Tensions or conflicts concerning contemporary social or economic institutions, and/or worry about economic, national or international situations at time of graduation.	Are there any problems not mentioned in the previous question which have been bothering you in the past six months? What general sort of problems? (IF MORE THAN ONE CATEGORY IS MENTIONED, ONLY THE FIRST ONE MENTIONED IS CODED.)
	2	B	Indecision regarding type of future work for which to train, and/or decision regarding whether or not to plan on post-graduate training.	
	3	C	Worry about examinations or flunking out of college.	
	4	D	Indecision regarding continuing college work or leaving to take a job.	
	5	E	Homesickness.	
	6	F	Religious or moral conflicts.	
	7	G	Parental family conflicts indirectly involving the respondent.	
	8	H	Insufficient time or faulty division of time.	

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[*] The category letter indicates the grouping of codes used in the tables in Appendix A.

REVISED CODING KEY
(For comments under Questions 36, 38 and 45)

Item	Code	Category*	Response	Question
45			Quality of courses or instruction	Briefly, what are the main changes you would like to see made in the program of organization of education at this college, in order to help you get what you are after in a college education? (ANSWERS TO THIS QUESTION ARE EXAMINED IN CONJUNCTION WITH COMMENTS MADE UNDER QUESTIONS 36 AND 38. UP TO THREE CODES ARE THEN ASSIGNED.)
	01	A	Any complaints regarding quality of course(s), instructors, or instruction.	
			Extensity or integration of courses	
	10	B	Need for more courses or teachers (includes need for smaller classes).	
	11	E	Need for better integration of existing courses.	
			Curriculum and course requirements	
	20	C	Too many, or inappropriate, required courses, or too few elective courses.	
	21	F	Internal requirements of certain course(s) too difficult.	
	22	D	Over-all requirements for graduation too difficult or inappropriate or unfair (includes complaints about examination or grading system).	
			Guidance	
	30	**	Need for better or more accurate catalogue information.	
	31	G	Need for closer student-faculty relationship.	
	32	H	Need for better guidance, counselling or placement service.	

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*The category letter indicates the grouping of codes used in the tables in Appendix A.

**Not reported in questionnaire tables in Appendix A because of low frequencies.

Item	Code	Category*	Response	Question
45 (Cont.)			Classes and classrooms	
	40	**	Complaints concerning class-room acoustics, ventilation, seating, etc.	
	41	**	Need for better or more lab equipment or supplies; shop equipment or supplies; mechanical teaching aids (e.g., P.A. systems, motion picture equipment).	
			Library and study facilities	
	50	**	Any complaints about library facilities.	
	51	**	Any complaints about library study hours.	
	52	**	Any complaints about quality of assigned textbooks.	
			Administrative and institutional criticisms	
	60	**	Lack of relationship between courses of instruction and practical real-life problems or contemplated careers. (DO NOT CONFUSE WITH 01.)	
	61	**	Any complaints regarding the term system.	
	62	**	Any complaints regarding the extensity or administration of a scholarship-aid program.	
	63	**	Any complaints about costs of tuition and other fees.	
	64	**	Complaints about institutional tradition, general policies, etc. (MAKE VERY SURE FIRST THAT THE ITEM IS NOT CODABLE ELSEWHERE.)	
			Miscellaneous	
	70	**	All other suggestions or complaints. (MAKE VERY SURE FIRST THAT THE ITEM IS NOT CODABLE ELSEWHERE.)	

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[*] The category letter indicates the grouping of codes used in the tables in Appendix A.

[**] Not reported in questionnaire tables in Appendix A because of low frequencies.

CODING MANUAL

(For comments under Questions 36, 38 and 45)

I. Code Classifications

01 Complaints regarding quality of existing course(s), instructors or instruction.

Notes: (1) If the complaint specifies a course which the student indicates he has been forced or required to take, it should receive Code 20.

(2) However, if the complaint specifically refers to quality of instructor it belongs in this 01 classification whether or not the course which the instructor offers is a required course.

(3) If the complaint concerns the difficulty of a particular course, or courses, it should receive Code 21.

10 Need for more courses, teachers or classrooms.

Notes: (1) Includes need for smaller classes.

(2) If complaint simply specifies, "need better teachers," it should receive Code 01. However, if the complaint states, "need more and better teachers," both Code 10 and 01 should be used.

(3) In regard to courses, to receive this code the complaint must specify the need of the school to provide some course not presently available. (This includes new or additional sections of currently offered courses.)

(4) If the complaint is concerned simply with the student's desire to take some existing course, from which he is barred for other than size-of-course reasons, it belongs in the 20 classification.

11 Need for better integration of existing courses.

Notes: Includes such remarks as these:
"The Economics Department ought to be streamlined."
"Too much repetition and overlapping between courses" (or between course material or presentation in different sections of same course).
"Complementary but mutually exclusive courses are given at same time. Want to take both but cannot."
"Need a general survey course in History."

20 Too many, or inappropriate, required courses; or too few elective courses.

Notes: (1) In regard to elective courses, the reference here is to existing courses which the student wants to take but which he is prevented from taking either because of necessity of fulfilling prerequisites, or because his time is too filled with required courses. If, however, he is suggesting the addition of a new course to the curriculum, which is not now offered to anyone, the remark should receive Code 10.

(2) In regard to required courses, the student must indicate that he is complaining about a course he has to take before it is codable under this classification.

(3) Any complaint about any existing required course belongs in this category unless it is concerned only with the difficulty of the course, in which case it should be coded as 21.

21 Internal requirements of certain course(s) too difficult.

Notes: (1) Applies to any course, whether required or not.

(2) Applies to such hurdles as term papers, required reading, book reports, length of laboratory hours, etc., that the student thinks are overly difficult requirements.

(3) Includes such remarks as:
"Course takes up disproportionate amount of time."
"Not enough credit given for course."
"Details too rushed--should go slower."

22 Over-all requirements for graduation too difficult or inappropriate or unfair.

Examples: (1) Complaints about grading system or examinations (including complaints regarding cheating).

(2) Complaints about being penalized for cutting classes.

(3) Complaints about senior theses requirements.

(4) Desire for decreased number of years between matriculation and graduation.

(5) Curriculum as a whole through to degree either too generalized or too specialized.

30 Need for better or more accurate catalogue information.

Note: Includes all complaints about poor or faulty advance information concerning courses, course requirements, graduation requirements, etc. that are clearly not blamed upon poor or inadequate counselling.

31 Need for closer student-faculty relationship.

Note: This is often tied in with desire for smaller size of classes. Also included are such matters as: lack of interest in students by faculty members; impersonality of education, etc.

32 Need for better guidance, counselling or placement service.

Note: Do not confuse this with Code 31.

40 Complaints concerning classroom or laboratory acoustics, ventilation, seating, etc.

41 Need for better or more lab equipment or supplies; shop equipment or supplies; mechanical teaching aids. E.g., cyclotrons, P. A. equipment, etc.

50 Any complaints about library facilities or staff.

51 Any complaints about library study hours.

52 Any complaints about quality of assigned textbooks.

60 Lack of relationship between education and real-life problems or contemplated careers.

Note: This is a general complaint about education as a whole in this institution. However, if necessary for field trips or outside concrete guided experience in only one area of study is mentioned it would also receive this code.

61 Any complaints regarding the term system.

62 Any complaints regarding the extensity or administration of a scholarship-aid program.

Note: This is strictly limited to intramural aid. For instance, complaints about the extensity of the so-called GI Bill scholarship-aid program are not coded.

63 Complaints about tuition and other fees.

64 Complaints about institutional tradition, general policies, procedures, etc.

Notes: (1) Complaints about the academic standing of the institution.

(2) Complaints about entrance requirements (insofar as they affect necessity for uncredited "make-up" work, probational standing, etc.).

(3) Desire for increased number of years between matriculation and graduation.

(4) Other examples:
"This place is too reactionary."
"We are treated here as though we were children; not as adults."
"The registration rules and procedures are out-of-date and too time-consuming."
"This university is more interested in athletics than in teaching its students properly."
(MAKE VERY SURE FIRST THAT THE ITEM IS NOT CODABLE ELSEWHERE.)

70 Miscellaneous.

All other pertinent suggestions or complaints.

1. MAKE VERY SURE FIRST THAT THE ITEM IS PERTINENT.
2. MAKE VERY SURE THAT THE ITEM IS NOT CODABLE ELSEWHERE.

II. Selecting Remarks to Code.

a. Examine comments made under Question #36. If more than one codable comment appears, code only the first one. If none appears, go on to Question #38.

b. Examine comments made under Question #38. If more than one codable comment appears, which varies from the one coded from Question #36, code only the first one. If none appears, go on to Question #45.

c. Examine answers given to Question #45. Code as many codable comments, in order as given, that differ from those already selected from Questions #36 and #38, as necessary to make a total of three codes.

d. If a total of three codes have not been obtained, re-examine comments under Questions #36 and #38 to see if additional codes can be obtained from them. If not, code YY for missing codes.

III. Entering Codes on Questionnaire, Recording, Editing.

a. First coder writes the three codes in vertical order in left-hand margin of front cover of questionnaire about three inches above the bottom of the page. He initials his code.

b. Second coder independently (i.e., without examining codes assigned by first coder) edits and codes; writing his codes in the three code boxes under Question 45. He initials his codes.

c. Clerk, by rolling questionnaire from front to back, brings the two sets of codes into apposition.

   (1) If the two sets of codes are in agreement, this fact is tallied, and such questionnaires separately piled.

   (2) If the two sets of codes are in disagreement, the second set of codes, together with initials, is copied from code boxes to front cover alongside the first set of code. Notation is tallied of the codes and coders involved in disagreement, and such questionnaires separately piled.

d. Two judges (preferably not involved in original coding) examine questionnaires showing coding disagreement, come to mutual decision concerning which codes to assign, and correct codes in code boxes accordingly. If judges cannot agree, questionnaire is referred to project supervisor for final decision.

CONSOLIDATION OF CODES USED FOR ADAMS, STEWART, AND MIDWEST TECH INTO THE REVISED CODING KEY FOR ITEMS 36, 38, AND 45

Category	Code	Old Codes Used for Adams, Stewart, and Midwest Tech Questionnaires
Quality of Courses or Instruction	01	01 20 21 23 24
Extensity or Integration of Instruction	10	06 07 22 25 30
	11	02 18
Curriculum and Course Requirements	20	08
	21	03 04 05
	22	10 11 12 14 15 16
Guidance	30	17
	31	26
	32	27 28
Classes and Classrooms	40	32
	41	33 34
Library and Study Facilities	50	40 41 42
	51	43
	52	44
Administrative and Institution Criticisms	60	45
	61	13
	62	50 51 52
	63	53
	64	60
Miscellaneous	70	09 31 54 55 61

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